Does it Take an Expert to Lead Experts?

Professionals versus Managers in Universities

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Declaration

I hereby declare that I have not used before or have published before any material contained in this thesis.

I also declare that it is my own work and confirm that this thesis has not been submitted for degree at another university.

ABSTRACT

This is an empirical study of leaders and how they affect organizational performance. Its context is the research university as a knowledge-intensive organization. It appears to be the first of its kind.

The thesis explores whether the characteristics of a leader in position today can tell us about the future success of their institution. It asks the question: Should research universities be led by top scholars? One reason why universities are an interesting case is that, unusually for knowledge-intensive organizations, their leaders' technical expertise can arguably be measured reasonably objectively.

Using cross-sectional analysis, the first approach adopted in this thesis is to identify whether accomplished scholars are currently leading the world's top universities and business schools. It demonstrates -- using a variety of data sets, and in a variety of settings, including a check on the role of outliers -- that better universities and business schools are led by presidents and deans with systematically higher numbers of life-time scholarly citations.

Next the dissertation attempts to go beyond simple cross-sectional patterns to address the question of causality. It does so in a longitudinal study that follows the performance of a panel of 55 universities over a nine-year period from 1992 to 2001. Using regression analysis, this thesis uncovers some evidence that is consistent with the existence of a causal relationship between the research ability of a leader and the future achievement of their institution. The results suggest that a university tends to improve in the UK Research Assessment Exercise if its leader has been a successful scholar.

Qualitative evidence in the form of interviews with university leaders then motivates a theory of strategic leadership that might explain the statistical patterns. It is argued in the thesis that scholars may make effective leaders for reasons that are both internal and external to the individual. A scholar-leader, it is suggested, influences performance because of an inherent knowledge of the core business of a research university, and also through the extension of powers acquired by being viewed as credible by followers. Finally, the thesis concludes by asking whether university governing bodies appoint the right people.

The central argument being made in this thesis is that where expert knowledge is the key factor that characterises an organization it is expert knowledge that should also be key in the selection of its leader.

Introduction

Introduction

This thesis is an interdisciplinary study of leadership and performance. It argues that in knowledge-intensive organizations, where the majority of employees are expert workers, having a leader who is also an expert may be beneficial to the institution's long-term performance. The thesis chooses, as its example, universities. It appears to be some of the first empirical work of its kind. Although there is a large academic literature on leadership, there has been little empirical analysis about leaders of knowledge-intensive organizations and in particular in universities.

This study explores whether the characteristics of a leader in position today can tell us about the future success of their institution – more specifically, it asks the question, is there a relationship between university performance and leadership by an accomplished scholar? A natural alternative argument takes the form: what the leader in the knowledge-based sector needs is primarily high managerial ability allied merely to some acceptable minimum level of technical ability. By contrast, what the later data suggest is a fairly smooth relationship between the level of scholarship and university quality.

The focus here is on strategic leadership *in context* (Fiedler 1967, Bass 1985, Pettigrew 1985, 1990, Leavy & Wilson 1994, Bryman 1996, Carpenter 2002). In addressing the research question, this thesis attempts to combine quantitative and qualitative data. It relies mostly on statistical analysis but also includes interviews with leaders.

Four separate data sets have been created by the author. Before the empirical evidence is presented, the thesis sketches a theory of strategic leadership.

Why is this research important?

First, around the world, interest in university leadership and governance has grown as the sector has become increasingly competitive and global. Major changes have taken place in institutions of higher education, and subsequently in the role and responsibilities of their leaders (see for example Bargh, Bocock, Scott, & Smith 2000, Bok 2003, Tierney 2004, among others). Therefore, it seems valuable to try to understand successful leadership in these times.

Second, and more importantly, as we live in a world where competitive advantage arguably depends on intellectual innovation -- not primarily on the manufacturing of physical items -- we need to know more about leaders in the knowledge-intensive sector, especially in universities. The world's top institutions are located in the US. Evidence for this is presented in Chapter 3, where, in an international league table of universities, the top ranking institutions are overwhelmingly American. It may be important, therefore, to try to uncover what differentiates these institutions from their rivals. This seems especially important if universities in the rest of the world are to attain levels of excellence and compete for resources, and, crucially, the best faculty.

On leadership, a comment from a UK vice chancellor (VC), head of the only private university in England, seems relevant.

- *'… The best universities in the world are those of the American Ivy League, and they are run by academics. The connection is not hard to make.'* Terence Kealey, VC, Buckingham University quote (in the Times Higher Education Supplement 25 August 2006).

Data presented later show that leaders of the top universities are not only academics they are notable scholars. Interestingly, the most successful US institutions are predominantly private, with some famous exceptions,

for example the University of California. This raises questions about the role of governments.

In the UK in the last two decades there have been moves towards introducing a business culture into the public sector, often called 'new managerialism' (Clarke & Newman, 1994, 1997), or its less ideological counterpart, 'new public management' (Hood 2000). The dissertation is not the place to review the history of managerialism, but in the UK it is sometimes seen as having been initiated under Prime Minister Margaret Thatcher and embedded under Prime Minister Tony Blair (Andrews 1998).

Kogan describes leadership in British universities as being disposed towards 'managerialism' as early as 1984, and he explains that it started because of the intense financial pressures on universities at that time (Kogan 1984). A milestone in this change of attitude came from the UK government commissioned Jarratt Report (1985). Jarratt both predicted and advocated that university leaders should be appointed because of their managerial qualities as opposed to their 'collegial or charismatic authority' (1985). The assertion that VCs in the 1980's were becoming more akin to CEO's, as suggested by Jarratt, was the theme of a study by Bargh, Bocock, Scott & Smith (2000). But they found little evidence that UK vice chancellors were acquiring the powers of chief executives. Yet this may be changing. In the qualitative interviews reported in Chapter 6 there is some evidence that UK vice chancellors believe they are becoming more powerful as leaders. With regards to any change in culture, Barge and colleagues noted an increase in the use of management practices, and in managerial jargon being used in documents, for example, university reports (2000). Interestingly, they

suggested that it was the older research universities, as opposed to the newer institutions[1], that adopted a more corporate style.

Universities in the UK have increasingly been seen as part of the public sector (Neave 1988, Jenkins 1995, Greatrix 2005) which might also explain the adoption of a more managerial approach. Since the late 1980's, controls over the affairs of universities have shifted towards central government (Neave 1988, Jenkins 1995, Greatrix 2005). This is again attributed by some authors to Margaret Thatcher (Barnett 1988, Neave 1988, Jenkins 1995, Stevens 2004), who, it is argued, reduced the autonomy of universities and concomitantly the power of faculty.

There is some evidence to suggest that universities in the UK have become more managerial (see Deem 1998, Deem & Brehony 2005). In addition, their remit has broadened beyond solely the generation and dissemination of knowledge. For example, New Labour has emphasized ideas about universities contributing directly to national wealth-creation (Middlehurst & Elton 1992, Pollitt 1993, Greatrix 2005), and they have encouraged links with business (see the Lambert Review of Business-University Collaboration 2003[2]). The reason that successive governments have sought to become more involved in the running of universities is largely believed to be because of a desire to reduce public funding (Barnett 1988, Neave 1988, Shattock 1994, Jenkins 1995, Stevens 2004). Yet, it could be argued that UK research universities are merely publicly assisted, as they receive only marginal amounts of direct funding from government.

The views of one long-standing UK vice chancellor interviewed for this research are interesting:

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[1] In 1992 the UK higher education sector expanded substantially as polytechnics were granted university status. At this time the numbers doubled from approximately 50 to over 100.

[2] Available from www.hm-treasury.gov.uk

- *"Since the Thatcher years, and then into Blair's period, universities have been condemned for being badly managed places. As if they are run by amateurs. I completely disagree and in fact I see it as insulting. I believe that the corporate sector has many more failures and also corruption and cover-ups. Don't get me wrong, I think the corporate sector has many things to teach us, particularly in the area of finance and project management, for example. But these can be brought in. They don't need to reside in senior positions.*

  "If we have not been efficient then I would like to see some evidence in terms of outputs. We have successfully educated a huge number of graduates, and for very little money. UK universities are the second most-cited after the US, we have a massive share of the overseas market, and indeed many European countries are trying to emulate our system."

This thesis rests on a central tenet: that research universities are knowledge-intensive organizations (Mintzberg 1979). Their core business is generating knowledge, through research, and disseminating it through publishing and teaching. It is not, fundamentally, service provision. Without question, service is important, but it should arguably be viewed as supporting the core functions. In professional service firms, which are somewhat akin to universities, professional staff are treated as 'autonomous competent individuals' (Handy 1984, in Middlehurst & Elton 1992, pp. 225) who, on the whole, manage themselves. This does not mean that administrative and management support is unnecessary, only that management functions should not impinge too directly on professionals (Handy 1984, Maister 1993).

In some ways this view has its roots in the early literature about the differences between management and leadership. Management is about

maintaining systems and instituting controls, and managers are seen as accepting the *status quo.* Leaders, on the other hand, are perceived as taking the longer perspective; they are more directly involved with strategy and also organizational change (Bennis & Nanus 1985, Bennis 1989, Kotter 1988, 1990, Middlehurst & Elton 1992). This thesis will argue that the distinction between managers and leaders may be even more important in knowledge-based organizations because of the technical ability required by those who lead experts.

Figure A presents the dissertation's argument in a schematic model that links the appointment of a scholar with the performance of a university. It suggests that if a governing body has decided upon a strategy of raising or maintaining the research performance of their university, then appointing a leader who is a scholar may be the right choice. The model over-simplifies a complicated process but serves to illustrate the point and to introduce the key conceptual arguments presented in this thesis.

The education and career history of university presidents[3] has attracted interest in previous research, (Szreter 1968, Halsey and Trow 1971, Cohen and March 1974, Taylor 1986, Middlehurst 1993, Bargh at al 2000, Dolton and Ma 2001), but little specific attention has been given to the research background of academic leaders. Yet many university websites make a great deal of the eminence of their president. Also, given the centrality of research performance in many institutional mission statements -- expressed through the quality of research produced and the scholarly reputation of staff -- it is logical to turn to the academic ability of their leaders.

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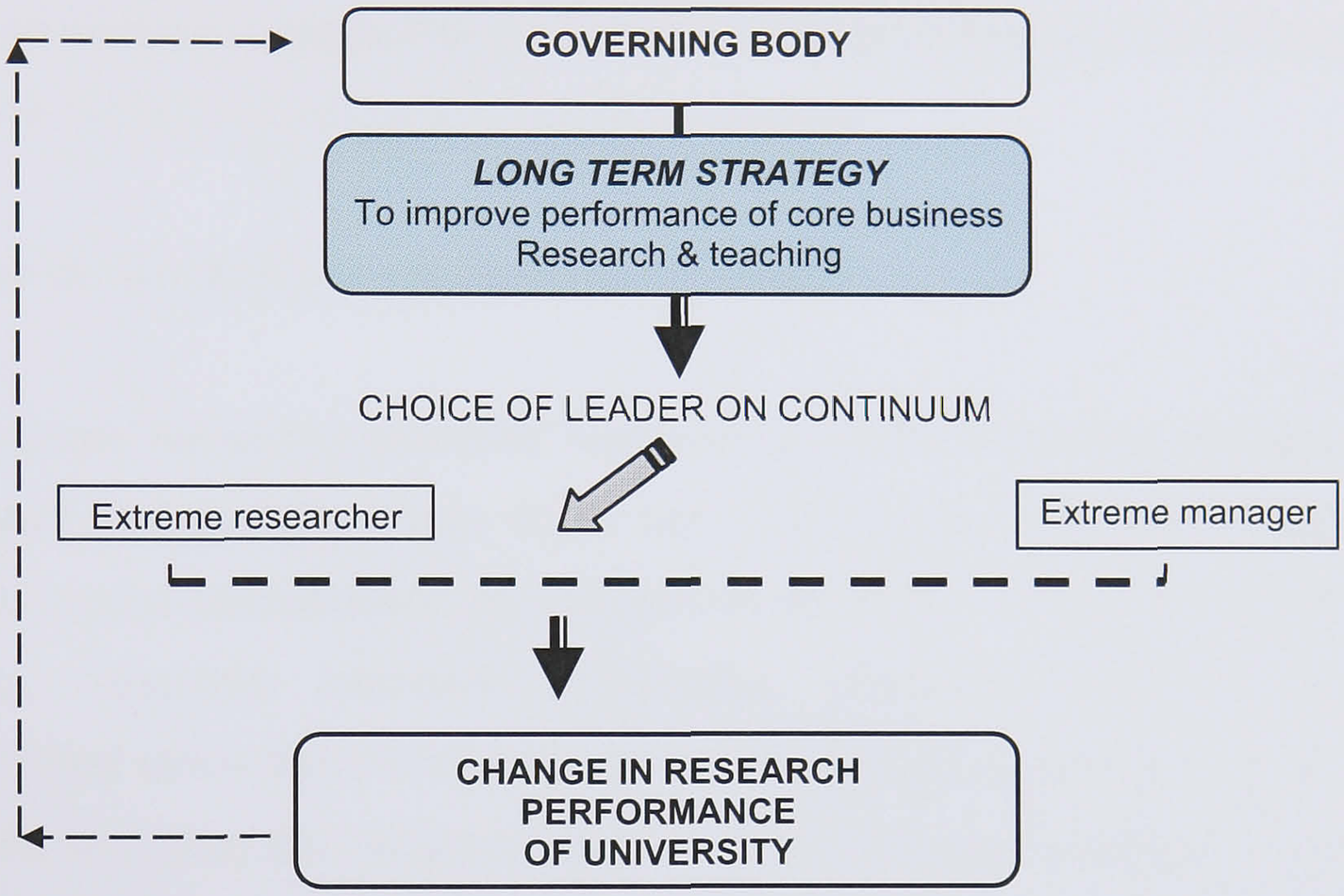
[3] The term 'president' is generally used to denote head of university, vice chancellor, principal, director, rector, among other titles unless otherwise specified. When referring specifically to UK leaders the term vice chancellor (VC) is used.

Figure A.

Model Linking Appointment of a Scholar on a Continuum Between Extreme Researcher and Extreme Manager with Later University Performance



Two further points should be raised in this introduction. First, the core business of research universities is research and teaching. Although teaching is a central activity of universities, it is research quality that top universities prioritize. This is evident in the fact that promotion within the faculty is typically through a peer-review process that focuses almost entirely on candidates' research productivity. That is not to say that brilliant teaching is unimportant but that it alone will not usually lead to promotion in most research universities. This situation may differ in colleges and universities that prioritize teaching over research.

Second, in this thesis, scholarship is not viewed as a proxy for either management experience or leadership skills. An 'expert' leader must have expertise in areas other than scholarship. Most academics in senior leadership positions within universities have first gained management experience by running research centers or labs, or heading up academic

programs. For example, the overwhelming majority of leaders interviewed in this study were either deputy-heads, deans or they led major laboratories before their step to the top position. Scholarship, therefore, is already a prerequisite of leadership in universities. To head up an academic department or school, one must first be a senior member of the faculty, usually a full tenured professor.

How do we define a research university?

The term 'research university' has been used for a number of years in the United States (US) where there are 3,500 higher education institutions that require classification (Brodie & Banner 2005). In the United Kingdom (UK), 'research intensive universities' (Shattock 2003) have been identified since the introduction of the Research Assessment Exercise in 1986, and also the expansion of the higher education sector in the early 1990's.

The Carnegie Foundation for the Advancement of Teaching produces a regular report entitled 'A Classification of Institutions of Higher Education'. The report[4] states that research universities are those that 'offer a full range of baccalaureate (under-graduate) programs, are committed to graduate education through the doctorate, and give high priority to research'. Research universities have a 'commitment to create new knowledge', and therefore 'they consider research capability as a primary qualification for appointment, promotion, and tenure of faculty members, and they pride themselves on having world-class scholars among their ranks (1994).' This thesis uses the Carnegie definition of a research university.

[4] A Classification of Institutions of Higher Education (1994).

Structure of Thesis

The research presented in this thesis draws upon four different data sets that have been compiled by the author for this study. Three chapters are quantitative and the fourth offers qualitative data from interviews with leaders in universities in the UK and US.

The hypothesis explored in the dissertation is underpinned by theories which argue that knowledge-intensive organizations perform better if led by experts. Therefore, in Chapter 1 the proposition is offered with supporting arguments and theoretical models. It is suggested that scholar-leaders, those with high technical ability, are at an advantage because they have a greater understanding of the organization's core business and, also, they appear more credible to those being led.

Chapter 2 opens the empirical section with an outline of the method and sample. It also focuses on the thesis' key variable or characteristic, namely the lifetime citations of presidents. Citations are used here as a measure of how research-active and successful a president has been in his or her academic career. Each academic discipline has very different citation conventions. To be able to compare the lifetime citations of a biologist with an economist or historian requires a process of normalization. Information about the collection of citations and their standardization is outlined in Chapter 2. Also included is a review of the ethical procedures followed in this study.

A first step to reaching the dissertation's hypothesis is to ask: 'Are top scholars currently running research universities?' If they are not then it is unlikely that the leader characteristic of scholarship is important. In Chapter 3 this question is explored empirically by examining what the world's top universities actually do. If the best institutions -- who arguably have the widest choice of candidates -- systematically appoint top

scholars as their presidents, this could be one form of evidence that, on average, better researchers may make better presidents. Economists would call this a revealed preference argument. Chapter 3 then reports a positive correlation between the lifetime citations of a university's president and the position of that university in a global ranking. Statistical tests calculating Pearson's correlation coefficient and Spearman's rho are applied to cross-sectional data. The higher the university is in the global league table, the higher the lifetime citations of its leader[5].

Chapter 4 looks for a similar relationship between the citations of deans of business schools and the position of a school in the FT Global MBA ranking. Because business schools have the complicated task of reaching out to two communities – researchers and practitioners – it might be expected that a significant relationship will not exist. Yet, again, using cross-sectional analysis, a positive correlation is found between the position of a business school in the ranking and the prior research achievement of its dean.

Chapter 5 attempts to go beyond cross-section patterns to address the question of causality by drawing upon longitudinal information. It does so by using an established measure of performance that has existed in the UK since 1986 – the so-called Research Assessment Exercise (RAE). The data come from 55 UK research universities, namely, those institutions that competed in the RAE in 1992 and also 1996 and 2001. Using regression analysis, the study uncovers evidence that seems consistent with the existence of a causal relationship between the research ability of a leader and the future performance of their university.

The focus turns to qualitative evidence in Chapter 6. Data from interviews with 23 leaders in US and UK research universities are presented, together with statements from UK vice chancellors reported in

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[5] This chapter was published in the Journal of Documentation (2006) 62(3): 388-411.

the Times Higher Educational Supplement. Finally, a number of interviews have been conducted with members of a committee to appoint a UK vice chancellor. Data from these are also included.

In Chapter 7 the empirical findings are used to further discuss the theory of strategic leadership presented in Chapter 1. This chapter concludes by raising questions about the process of selecting leaders that may sometimes be adopted by university governing bodies. Possible limitations of the thesis and suggestions for future work are in the closing chapter.

Chapter One

Why Better Scholars May Make Better Leaders

Theory Propositions

Introduction

The empirical work in this thesis is motivated by a theory suggesting that experts and professionals are better led by individuals who are also specialists. In this respect, it is suggested that professionalism rather than managerialism is a more robust basis for leadership in a knowledge-intensive organization, which is likely to be reflected in organizational performance. In the context of research universities, it is argued that accomplished scholars (i.e. those with professional expertise) may be the more appropriate and successful leaders.

The basic premise, advocated below, is that leaders with high technical and professional ability have *inherent knowledge* of the organization's core business, and that this influences a leader's *inherent preferences*. So, for example, a scholar-leader may prioritize activities, decisions and resources related to research. A second requisite factor lies with the followers of leaders, in that they must view their organizational head as being credible. It is suggested that *credible leadership* extends a leader's influence and authority. Inherent preferences and credible leadership are viewed as being different sides of the same coin. Central to the theory is the context in which leadership is being examined. The arguments laid out are not necessarily generic to all leaders, only those in organizations that are knowledge-intensive or professional, although the latter group are not included in this study.

The Context

Research universities are examples of knowledge-intensive organizations (Mintzberg 1979). The longitudinal evidence in this thesis suggests that a scholar-leader may improve the future performance of a university. As will be argued in this chapter, this is perhaps partially explained because a leader who is a scholar, with technical and professional ability as

opposed to merely managerial skills, has a greater understanding of the organization's core business.

Figure 1.1

The Research University

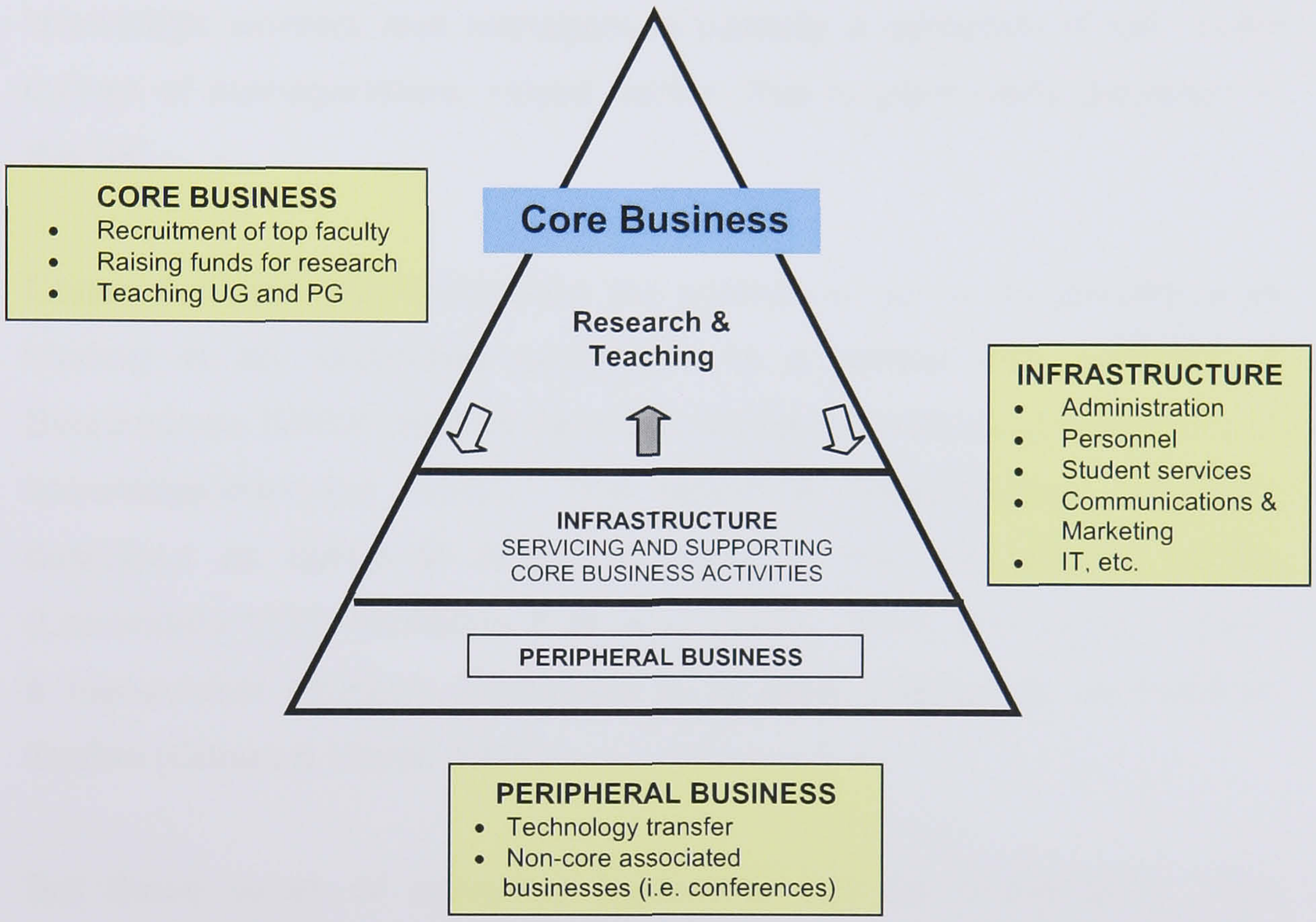


Figure 1.1 presents a model of a typical research university. The core business is research and teaching, as identified in most university mission statements. It is supported by the administration that ensures the smooth running of the institutional infrastructure and also the services provided. A third tier is common, particularly since the 1980's, which includes various forms of peripheral business, such as technology transfer.

Universities can be described as pluralistic organizations (Denis, Lamothe & Langley 2001) because they are made up of groups with

divergent interests. For example, one group consists of faculty who are the knowledge-workers most closely aligned to the core business, and, arguably, the income generators. The second dominant group in a university is made up of administrators and professional managers, without whom the organization could not function. Tensions can exist between these two groups. It could be argued that conflict between knowledge workers and managers is partially a symptom of the recent culture of managerialism, raised earlier, that is particularly prevalent in the UK.

Cohen & March (1974) describe the position of university presidents as leading in an 'organized anarchy'. In a similar vein Alvesson & Sveningsson (2003) refer to the often ambiguous nature of leadership in knowledge-intensive firms. This arises in organizations commonly described as collegiate where a leader is the 'first among equals' (Lowendahl 1997, McKenna & Maister 2002). Thus, they argue, without a hierarchical structure, leadership is at least ambiguous, at worst an illusion (Cohen & March 1974).

But these views of university leadership can be challenged. Four arguments are presented here.

Middlehurst & Elton (1992) suggest that Cohen and March's description of a university as an 'organized anarchy' is 'a phrase that is both unfortunate in its connotations and contradictory in its form' (pp. 253). Hammond (2004) questions the idea that universities are non-hierarchical. Indeed, he argues that 'like most large institutions they retain significant hierarchical features' (pp. 93). This also applies to professional service firms (PSFs) where again a similar misconception about hierarchy is often propagated. While PSFs may have somewhat flatter organizational structures than in most manufacturing firms they are

still run along traditional bureaucratic lines with promotion through a hierarchy (Maister 1993).

Second, it is unlikely and may be somewhat contradictory to suggest that a culture of organized anarchy, or even ambiguity, reigns when the central business and structure of an organization has changed so little over the hundreds of years it has existed which, arguably, is the case with research universities. Indeed, unlike many other types of organizations they have demonstrated unusual stability (Birnbaum 1989). This fact seems at odds with the notion of anarchy. Arguably, there have been changes in the position of university presidents, reflecting on the one hand a globalized world, and on the other, expanding or shrinking markets, changes in funding mechanisms, enhanced competition and so on. But the core business of a research university does not seem to change a great deal from year to year, or from decade to decade.

This is consistent with a comment made by one of the non-academic UK vice chancellors interviewed for this thesis: *"... there is less freedom in a university. The strategic degrees of freedom are restricted in a university. It is more difficult to change the course – the outputs are always going to be about the same."*

Third, leadership in universities is not an irrelevant concept; it could be argued that leadership is as necessary in knowledge-intensive organizations as any other form of organization. Hammond (2004) claims that leaders in US research universities -- for example presidents, provosts and deans -- have substantial authority that is usually displayed in traditional organizational charts, akin to most private enterprises (Hammond 2004).

Finally, that leaders 'negotiate' their way through decision-making, as opposed to adopting what is perceived to be a more direct method within

a less collegiate structure, does not necessarily mean that they do not get their own way, nor that they have less power (Trow 1999). On the issue of power, one head-hunter who is used to recruit vice chancellors in the UK believes they are not lacking: *"There is no doubt that leaders have an enormous amount of power in universities; more than in many other organisations where the long-term strategy is firmly laid out. For example, in the civil service, or at the other extreme in Asda/Walmart where the leader is a motivator for the 'troops' but has very little say about the strategy of the business. That is all mapped out long before in somewhere like Ohio."*

Interestingly, some scholars have argued that university leaders with possibly the most direct powers reside in some of the best institutions in the world, for example, Berkeley, Stanford, Caltech, Ivy League institutions, among others (Rosovsky 1991, Trow 1999).

Leadership in Context

As mentioned above, leaders are discussed within a specified context not as a generic form (Pettigrew 1990, Leavy & Wilson 1994). This study attempts to present a theory of leadership in knowledge-intensive organizations. One reason why universities are an interesting case is that, unusually for knowledge-intensive bodies, their leaders' technical expertise can be measured reasonably objectively.

Of relevance here is the work on managing experts (Quinn, Anderson & Finkelstein, 1996) and professionals (Alvesson 1992, Maister 1993, Mintzberg, Quinn & Ghoshal 1995, Lowendahl 1997, Robertson & Swan 2003, McKenna & Maister 2002, Fenton & Pettigtrew 2006) and project leaders in research and development (R&D) (Narayanan 2001).

There have also been a number of influential empirical studies that focus on leadership in higher education (for example, Cohen & March 1974, Birnbaum 1988, Middlehurst 1993, Bargh et al. 2000, Ehrenberg 2004, among others). But, there appears to have been little statistical thinking about how leaders in knowledge-intensive organizations might influence performance; and in the context of research universities, the question of whether the level of scholarship may have some bearing on the appropriate choice of a leader has also received minimal attention.

Alvesson writes that knowledge workers can be loosely defined as 'having an interest in the use of judgement backed up to a high degree by theoretical, intellectual knowledge' (2004, pp. 1). Knowledge workers can be found in R&D, law and accounting firms, IT and management consultancies, and among engineers and scientists (Starbuck 1992, Maister 1993, Alvesson 2004). Experts and professionals are often described as being self-motivated, preferring to work autonomously and requiring minimal individual managing (Handy 1984, Starbuck 1992, Maister 1993, Mintzberg, Quinn & Ghoshal 1995, Lowendahl 1997).

Lowendahl (1997) suggests that good professionals (i.e. those who have excelled in consulting, accounting and so on) are required as firm managers. The key reason is that those with an excellent professional reputation (pp. 56) will be more readily accepted by their peers.

This thesis proposes that in knowledge-intensive organizations there are role-specific characteristics that may enhance a leader's ability to perform. This draws from upper echelons (UE) theory of strategic leadership (Hambrick & Mason 1984). UE theory argues that top managers make strategic choices (Child 1972, 1997) that are reflections of their own values and cognitions (Hambrick & Mason 1984), and that members of the top management team (TMT) will be influenced in their

decision-making by individual and group demographic factors (such as age, education, functional track, TMT heterogeneity among others).

Strategic Leadership

Most recent research on strategic leadership has focused on the top management team (TMT) (Hambrick & Mason 1984, D'Aveni 1990, Haleblian & Finkelstein 1993, Finkelstein & Hambrick 1996, Geletkanycz & Hambrick 1997, Goll & Rasheed 2005, among others). Increasingly, however, the TMT is being analytically dismantled, and research is turning to various constituent parts (for example, Lewin & Stephens 1994, Hayward & Hambrick 1997, Bigley & Wiersema 2002, Carpenter & Sanders 2002, Papadakis & Barwise 2002, Bertrand & Schoar 2003, Jensen & Zajac 2004, Arendt et al. 2005).

It is generally argued that universities are governed through processes of collegiality and negotiation (Cohen & March 1974, Birnbaum 1988). However, this does not mean that leaders have no influence, albeit there may be differences in levels of executive power between presidents in US privates and those in European universities (Rosovsky 1991). This is not the place to compare in the detail US presidential leadership with European rectors or British vice chancellors. Briefly, however, the American system is unitary with the president at the head of the hierarchy. Though the president reports to a powerful board of trustees, he or she is ultimately in charge, with a role similar to that of a chief executive officer.

Senior academic administrators in the US (deans, provosts, chairs of departments) are normally appointed by the leader, not voted into position by faculty, which is still the case in many continental European countries. The interview material with leaders that is reported in Chapter 6 would suggest that the UK seems to be moving slowly towards the US

model. But the US presidential system is still recognised as giving greater authority and powers to university leaders when compared to other systems of higher education (Rosovsky 1991, Trow 1999, Bargh et al. 2000). This is particularly true of US private universities. US publics on the other hand are more exposed to State government intervention (Trow 1999, Hammond 2005, Bloom, Hartley, & Rosovsky 2006).

The decision in this thesis to turn attention away from the TMT and on to individual leaders can perhaps be justified. In a university, apart from the president or vice chancellor at the top of the institution, there are other heads of key strategic units, for example, deans of schools or faculties. These second-tier leaders are also decision-makers. It is conventional for deans, and also presidents, to each have their own top teams. But, as suggested above, it is normally they who decide which academic administrators are to be included among them (Trow 1999).

Most heads of research universities in the US and UK make their own appointments to business school dean although endorsement from faculty may be taken into consideration (Rosovsky 1991). Similarly, it seems likely that most business school deans appoint their own deputy deans. This was confirmed in the interviews with leaders. All those interviewed in this thesis report that they selected their own top team, even though many of the UK vice chancellors complained that they had to first change or adapt the process. Thus power may be shifting towards leaders.

Adopting this position is not to deny the importance of TMT members, but, as argued, it is suggested here that the CEO, or president and dean is, in principle, *more* than a central member of the TMT (Jackson, 1992).

What about management and leadership ability?

As was mentioned earlier in the introduction, scholarship is not a proxy for either management experience or leadership skills but *in addition to*. Most academics in senior leadership positions within universities have first gained management experience as provosts and pro-vice chancellors or deans. However, a priori, if what really matters in a leader is managerial ability, it would not be expected that universities would be led by successful researchers.

Why Better Scholars May Make Better Leaders

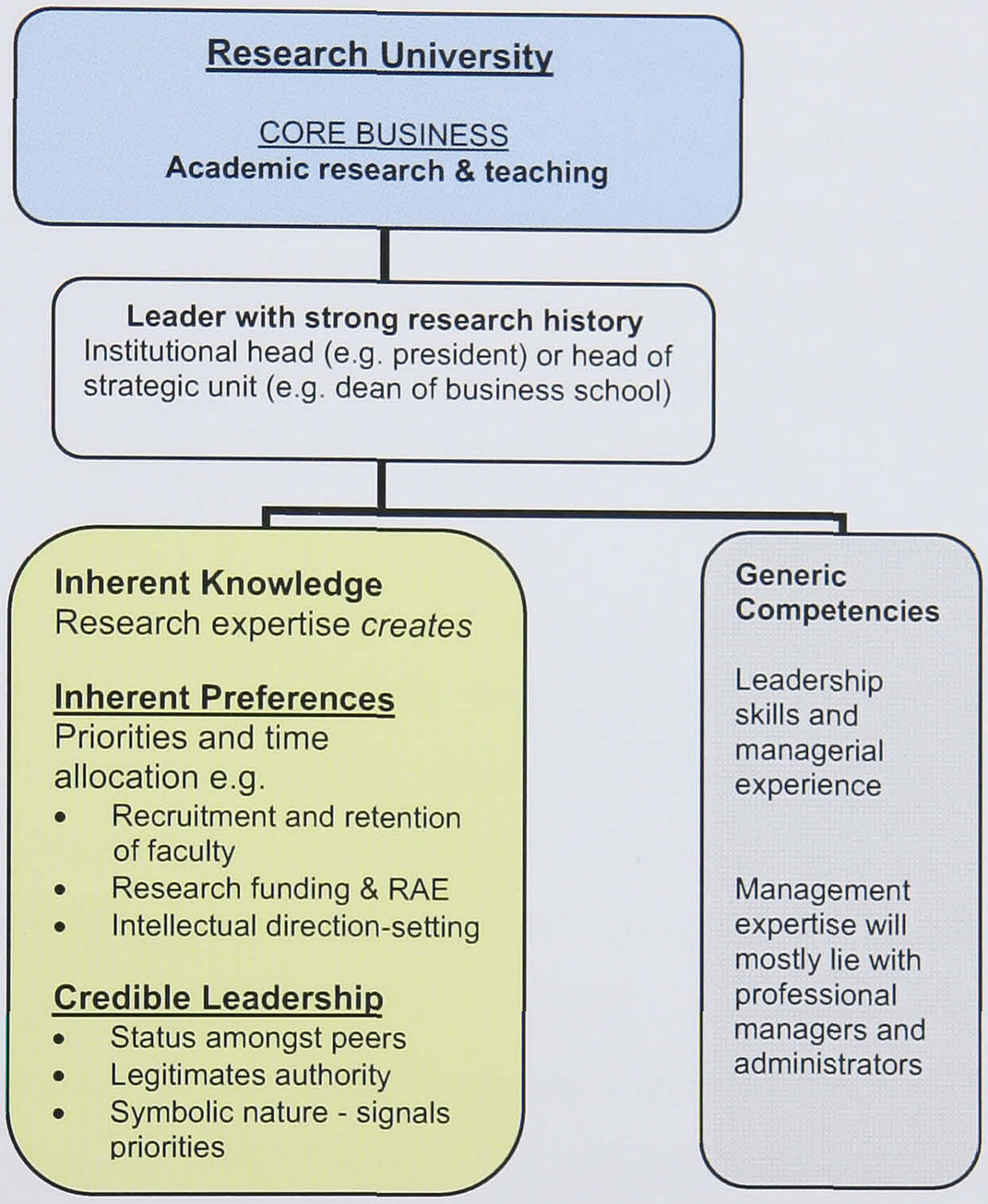
Figure A, in the introductory chapter (pp. 8), presents a simple schematic model that links the appointment of a scholar with the quality of a university. It suggests that if a governing body has decided upon a strategy of raising or maintaining the research status of their university then appointing a leader who is a scholar may be the right choice.

There has been discussion in universities, and especially business schools, about the effectiveness of non-academic leaders. This thesis not only argues that research universities, and other important constituent parts such as business schools and academic departments, should normally -- there will always be exceptions -- be led by academics, but also that leaders of research universities should be distinguished scholars.

A theory of strategic leadership in knowledge-intensive organizations is offered in this thesis to try to explain why a scholar-leader might improve an institution's performance. The theoretical proposition has two interrelated parts. The first is behavioural, in that it is internal to leaders. The second factor refers more to those who follow. Therefore, it is external to leaders. These two accounts are presented in Figure 1.2.

Figure 1.2

Theoretical Framework of Inherent Preferences and Credible Leadership



Included in Figure 1.2 are the generic competencies of management and leadership skills. As has been suggested a number of times, presidents and vice chancellors will usually have demonstrated substantial leadership skills to succeed to the top position. In addition, they will have managerial experience, although many of a university's managerial functions will reside with professional administrators, for example registrars, directors' of HR, finance and IT. As will be evident in Chapter 6, in the interviews with leaders, all but one emphasized leadership over management when describing the most important elements of their job. Many also stated that a leader can buy in administrative expertise where he or she feels lacking.

Inherent Preferences and Credible Leadership

Why might scholarship matter to leadership? The first part of the theoretical account argues that having been a top scholar may influence leader-behaviour. *Inherent knowledge* about academic research has been learned throughout a scholar's life. It is suggested here that inherent knowledge, which is a kind of deep understanding of research and scholarship, may shape the way he or she sees the world. Indeed, it may affect the way a leader runs an organization, by informing decision-making and influencing strategic choice (Child 1972, 1997).

Strategic choice may be directed through a process of *inherent preferences*. It is likely that a top scholar has prioritized scholarship in his or her own life and, furthermore, that they may continue to emphasize activities related to scholarship once becoming a leader. For example, in allocating time a scholar-leader may be more likely to stress academic and research activities above other demands on managerial time. Scholars may place greater emphasis on the selection of top faculty, and may be more likely to trade off other activities, so that they can perform a central role in faculty appointments and tenure decisions. Moreover, a leader who is also a top scholar may help to attract other top scholars to their institution.

It is suggested in Chapter 5 that universities led by successful researchers go on to perform better in the UK Research Assessment Exercise (RAE). This might happen because a scholar-leader prioritizes RAE related activities over others. It has been shown empirically that strategic choices which have been prioritized are more likely to yield successful outcomes (Hickson, Miller & Wilson, 2003).

This chapter's conceptual approach draws from Hambrick and Mason's (1984) theory of strategic leadership. In a similar vein, upper echelon

theory argues that the behaviour and strategic choices of members of top management teams will be influenced by demographic characteristics like education, socio-economic factors, TMT heterogeneity among others (Finkelstein & Hambrick, 1996). In this thesis, the externally observable characteristics are the lifetime citations of leaders, which are measurable and taken to be representative of the level of scholarship attained.

Deeper psychological factors may also be at play here. For example, when making faculty appointments -- even in a system that is genuinely meritocratic as opposed to one that is prone to nepotism[6] -- humans may favour some individuals over others for reasons that are not entirely logical. This may be related to confidence. As was said by one university leader interviewed for this research: *"Being a good scholar means that I can look a Nobel or Pulitzer Prize winner in the eye."* This will be discussed further in Chapter 7.

The second part of the thesis's theoretical explanation is about the role of *credible leadership*. The idea of 'legitimacy in the academic presidency' is taken up by Bornstein (2003) who outlines 5 key areas of legitimacy. First on her list and of relevance here, is individual legitimacy. She cites Birnbaum and Umbach (2001) who claim that presidential candidates with a traditional academic career path confer the greatest legitimacy. This is particularly true for those being selected into the most prestigious institutions which, they argue, are far less likely to appoint individuals from business, politics or the military (Birnbaum and Umbach 2001).

Bornstein (2003) goes on to suggest that individual legitimacy is further enhanced if candidates have a proven track record in administration, as dean or provost for example.

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[6] E.g. A culture of favouring inside promotions has been shown to be prevalent in the Italian system of higher education, and has lead to inefficiencies (see Perotti 2002).

Similarly, it is proposed here that when leading a knowledge-intensive organization -- like a university -- credible leadership may afford greater power. This idea is consistent with the literature on the social interactions between leaders and their followers (e.g. House 1977, Bass 1985, 1990, Bennis and Nanus 1985, Sashkin & Fulmer 1988, among others). It suggests that a scholar-leader will have greater credibility among his or her colleagues, and concomitantly that this might extend a leader's authority.

Thus, in concluding this section, this thesis argues that a scholar-leader with extensive technical expertise has 'inherent knowledge' of the organization's core business. It is suggested that inherent knowledge may inform decision-making and influence strategic choice. This happens in part through a process of 'inherent preferences' that directs leaders to prioritize research-focused activities. The second key factor when leading a university is 'credible leadership'. It is argued that a scholar-leader will have greater credibility among colleagues, and, concomitantly, that this will give him or her greater powers of influence. These theoretical ideas are revisited in Chapter 7 after the empirical evidence has been presented.

Chapter Two

Method and Sample

Introduction

Each of the empirical chapters in this thesis includes a tailored methodological section which gives a description of the data collection process, and the respective statistical tests that have been applied. Because of this there is no single methods section covering the whole thesis. But an overall explanation and description of research design and data collection methods is offered here.

This chapter will also convey information about the bibliographic data used in Chapters 3 to 5 inclusive. It outlines the strengths and weaknesses of using citations and looks at alternative measures. A detailed break-down of the normalization process used to assign life-time citation scores to leaders is also included.

Finally, the chapter outlines the ethical procedures that are being followed in this study. In the qualitative interviews careful attention has been taken to ensure confidentiality. The Research Code of Conduct at the University of Warwick has been followed.

Methodology

Attempting to address questions about how leaders impact upon organizational performance is challenging. This is because there is much other noise in the data which makes isolating the actions of one individual, albeit a notable individual, difficult. To then include performance variables and attempt to attribute institutional success to a leader adds yet another dimension.

The research question in this thesis -- to what extent are successful knowledge-based organizations led by experts rather than managers -- has been addressed empirically in three ways: statistically using

regression analysis, in a cross-sectional design and also longitudinally, and thirdly, in qualitative interviews. Universities were selected by the author as a type of knowledge-intensive organization partly because, unusually, a leaders' technical expertise can be measured reasonably objectively. It might be more difficult to measure the professional ability of a lawyer or accountant.

A possible weakness of the methodological approach arises when assigning explanations to the statistical patterns. The interview data are helpful in fleshing out and adding weight to the analytical arguments, but do not provide evidence of the transfer mechanisms (i.e. the processes through which a scholar-leader might influence an organization). An appropriate design to understand the processes more fully might be in-depth case-studies in a number of research universities that are led by scholars and non-scholars. This may be work for the future. Nevertheless, the author believes that the method used in this thesis generates evidence that is robust, especially as a first step to understanding this important and often-asked question.

Citations

This thesis focuses on one set of measures, namely the lifetime scholarly citations of presidents. Citations are references to authors in other academic papers as acknowledgement of their contribution to a specific research area. Citation information used in this study comes from the Institute of Scientific Information (ISI) Web of Science, the on-line database comprising the Science Citation Index, Social Science Citation Index and the Arts and Humanities Citation Index.

Bibliographic data are used as the key independent variable in this thesis in three of the empirical chapters. This information has been gathered by

hand-counting the lifetime citations of each leader. Data have been generated for 403 individuals. These include:

1. 100 global university presidents (Chapter 3) – collected between October and December 2004.
2. 100 deans of business schools in the Financial Times MBA ranking and also 38 deans of UK business schools (Chapter 4) – collected between June and July 2005.
3. 165 UK vice chancellors (Chapter 5) – collected in October and November 2005.

Citations are used here as a measure of how research-active and successful a president has been in his or her academic career. Bibliometric information is generally viewed as a reliable indicator of research achievement over time (van Raan 2003). Most academics who go into administrative positions reduce their research output. This depends, somewhat, on their discipline. The data generated for the purposes of this study make it clear that university presidents accumulate the overwhelming majority (approximately 90-95%) of their citations before they become institutional leaders.

Most important when using citations as any kind of measure is recognition of the huge differences between disciplines. For example, a highly-cited social scientist might have a lifetime citation score of around 2,000 whereas a molecular biologist could have a score over 15,000. Bibliometric indicators have been used more consistently across the sciences, particularly in the natural and life sciences, though less so in engineering and the behavioural sciences (van Raan 2003). These disciplines publish more journal articles and have a higher prevalence of co-authorship.

The social sciences are patchier. For example, economics relies heavily on journal articles although, unlike the science publications that tend to publish quickly, in economics it can be over two years from submission to publication (Hamermesh 1994). Writing articles for journals is much less common in the arts and humanities. These disciplines tend more towards publishing monographs. Cronin et al. (1997) found that in the discipline of sociology two distinct groups of highly cited academics co-existed – those highly cited through journal articles and those through monographs. This should present less of a problem here because citations from both books and journals that are recorded in ISI have been counted.

Van Raan (1998, 2003, 2005) has raised areas for concern when using citations as measures of quality. He suggests that citation indices have become easy tools for policy makers and university administrators keen to make quick assessments of individual research output and quality (van Raan 2005). Wouters (1999) points out that the ISI system was designed to retrieve information not evaluate it.

Self-citing is a potential problem that can take two forms: first, over-citing one's own work in academic papers and, second, self-citation in journals to try to raise the journal impact factor. An example of this is given by Fassoulaki et al. (2000), where authors report a significant correlation between self-citation levels and journal impact scores in the 1995 and 1996 issues of six anaesthesia journals.

Other possible difficulties with citations include inconsistencies in methods of referencing, and inaccuracies in citation statistics (Moed 2002, King 2004). Finally, monopoly concerns have been raised about over-reliance on the Web of Science (Weingart 2003, 2005).

Language biases have been shown to exist within ISI (van Leeuwen et al. 2001) though it is now considered to be less of a problem because most

journals publish in English (King 2004). King suggests that preferential referencing may take place in the US (i.e. that Americans are more likely to reference Americans), partially a feature of the size of that nation's output. To try to circumvent this, separate analyses of US data are offered in Chapters 3 and 4.

Although van Raan (2005) notes the weaknesses of bibliometric measures, he also argues that citations are a good indicator of scholarly influence over long periods of time. His preference for evaluating science is to couple peer review with bibliometric analysis. King (2004) suggests that citations are the most reliable measure of research quality and output. In a feature in the journal 'Nature', King uses the ISI citation index to measure the quantity and quality of science across different nations (2004).

There have been a number of studies comparing the UK's Research Assessment Exercise (RAE) results with bibliometric measures. Oppenheim (1997) uses ISI data to compare 1992 RAE results with citation indicators in three subject areas: anatomy, genetics and archaeology. He finds a strong correlation between the two methods of assessment and notes that in archaeology there is a greater reliance on monographic literature. Norris and Oppenheim (2003) replicate this study with approximately the same results following the 2001 RAE. Smith and Eysenck (2002) discover a similar correlation across all UK psychology departments in the 2001 RAE.

Substantial effort has been made to try to accurately assign citation numbers to people's names. Though some measurement error must be presumed, two studies that adopt different counting methods -- Seng and Willett (1995) who use a very precise method on the one hand, and Oppenheim (1995) who assigned citations more approximately on the other -- both report similar correlations.

Why use citations instead of journal articles?

There is a growing body of work that uses citations to assess intellectual output and productivity (see King 2004; Bayers, 2005). Moreover, citation counts are a good predictor of professorial salaries (Hamermesh, Johnson & Weisbrod 1982) and Nobel Prizes (Garfield & Welljams-Dorof 1992). An alternative approach is to count an author's published articles and weight by journal impact factors. However, this presents three problems. First, monographs would be excluded from the data. Second, the quality of a journal is a noisy measure of the future impact of individual articles (Oswald 2006). For example, many highly cited articles are not published in 'Grade A' journals and vice versa. Finally, assigning weight to journal quality through, for example, ISI Journal Impact Factors might not be reliable -- even if they were available -- for papers published 10-20 years ago.

Normalizing Citations to P-scores

The discrepancies in citation levels across disciplines are demonstrated in the number of new cited references that appear in ISI every week. The sciences generate approximately 350,000 new cited references weekly, the social sciences 50,000 and the humanities 15,000[7].

ISI has created a 'Highly Cited' (ISI HiCi) category that identifies approximately the top 250 academic researchers (depending on discipline) across 21 broad subject areas. They are dominated by science subjects, totalling 19. The social sciences are also covered, but there are only two social science subject areas, namely 'Economics and Business' and 'Social Sciences - General'. Currently no 'Highly Cited' category exists for authors in the arts or humanities[8].

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[7] These figures date to October 2004.

Using citation thresholds created by ISI HiCi a normalised citation score has been produced in this thesis for 23 subject areas. These include a score for the humanities that has been generated for the purposes of this study. It is necessary to note that the discipline of law is classified in ISI as being in the social sciences not the humanities. It is included here in the 'Social Sciences - General' category.

Each university president is assigned a normalised citation score, which reflects both the differences across disciplines and their personal citation levels. This score is referred to as the 'P-score' = president's individual lifetime citation score normalised for discipline. The P-score is used here as an exchange rate normalising the different citation conventions across disciplines. A president's lifetime citation score has then been divided by his or her subject score. The normalised P-score produced through this process makes it possible to do like-for-like comparisons between individuals from different disciplines.

The humanities score has been created by the author using the 'new cited references' generated by ISI each week. (As mentioned above the sciences approximated at 350,000 new cited references weekly, the social sciences 50,000 and the humanities 15,000.) If we divide the social science weekly score of 50,000 by the humanities 15,000 we get a figure of 3.33. The author has then divided the 'Social Sciences, General' score of 117 (see Table 1.1) by 3.33 which creates a score of 35.13. The number 35 has been used here as the 'Humanities, General' score.

The normalization method used in this thesis was created by the author in 2004. Another comparable method of normalizing citations is used by Podlubny (see Podlubny 2005 and Podlubny & Kassayova 2006).

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[8] This was the case at the end of 2006.

Does the age of a leader matter?

The issue of whether age biases an individual's citation levels is addressed in each of the chapters that draw from bibliometric data, so it is not necessary to go into detail here. But a summary is perhaps helpful. This issue can be looked at from two perspectives. The first posits that older leaders have an advantage because they may have had longer to accrue citations. The second argument suggests that bibliometics are more a feature of modern academia, and, therefore, younger leaders are likely to have played the game and built up higher numbers of citations. These two will thus work in opposite directions. In fact, as will be shown later, there is no evidence that age skews the citations levels of university leaders.

Data Collection and Ethics

Four data-sets have been created for this thesis. They include quantitative and qualitative data. In the quantitative chapters, information has come from public sources. Qualitative data have been acquired through semi-structured interviews with a number of university leaders.

Quantitative data

Four hundred and three (403) individuals are included in data presented in Chapters 3 through 5. The data used in Chapters 3 and 4 comprise of 100 university presidents and 138 business school deans. The names of presidents and deans have come through institutional websites. In Chapter 5, information on 165 vice chancellors has been gathered through 'Who's Who', and the Association of Commonwealth Universities. As previously mentioned, the bibliographic data used in this study come from the Institute of Scientific Information (ISI) Web of Science. For reasons of confidentiality and sensitivity, given the high status of

university leaders, the quantitative data consisting of leaders' citations information have been included in the thesis copies available to the doctoral examiners only (see Appendix 4), but they are of course available on request.

Kaleidagraph was used to analyse and present data in Chapters 2 and 3. SPSS was used in Chapter 4.

Qualitative data

Qualitative data are discussed in Chapter 6. They consist of 23 interviews with leaders in universities in the US and UK and also 10 interviews with members of a panel to appoint to the position of vice chancellor in a UK university. Finally, secondary data in the form of statements from 11 UK vice chancellors in the Times Higher Education Supplement are included. Because these are not primary data, their quality and accuracy cannot be validated by the author. They are reported here because of their relevance to the dissertation's research question.

Interviews were documented by transcribing what was heard by hand into a notebook. They were not recorded because of the status of the interviewees. The author believed that university leaders would be both more candid and more at ease if a voice recorder was not used. Interview transcriptions are reported in Chapter 6. Responses were colour coded and grouped into two-clusters. The first level clusters interviewees' responses around interview questions. The second level clusters interview material around the key themes that emerged from the data. A qualitative data analysis package, for example NVivo, was not used in this thesis. The author felt that as the interviews were transcribed by hand instead of voice recorder NVivo would not be appropriate. This is because the *exact words* given by those interviewed could not be

guaranteed as might be expected when interviews are recorded digitally or on tape word-for-word.

In all interviews between the author and university leaders, there has been agreement that no names will be attributed to statements in any materials or publications unless approval from participants has first been sought. This has been adhered to in all journal articles and working papers in the public domain (published or on websites). In this thesis, except for the Times Higher Education Supplement material and in places where prior authority has been sought (for example in Chapter 4), no interview statements are assigned to names. Only general information, for example 'former vice chancellor' or 'dean', accompanies the statements.

In the case-study featuring members of a vice chancellor's appointment committee, total anonymity is given both to the institution and all panel members – as per prior agreement with participants. All interviewees who have kindly participated in this research have been kept up to date with new papers and they have been promised a copy of the final thesis.

The author is committed to ensuring that a high standard of integrity is applied to this study. Ethical practices are congruent with the University of Warwick, Research Code of Conduct.

Finally, the author wishes to thank all participants who agreed to be interviewed.

Table 2.1

Citation Thresholds for Scientists Across Different Disciplines

Subject area	Scientist
Agricultural Sciences	154
Biology & Biochemistry	780
Chemistry	648
Clinical Medicine	1095
Computer Science	84
Economics & Business	169
Engineering	182
Environment/Ecology	248
Geosciences	433
Humanities, General*	35
Immunology	763
Materials Science	219
Mathematics	130
Microbiology	534
Molecular Biology & Genetics	1234
Multidisciplinary	123
Neuroscience & Behaviour	908
Pharmacology & Toxicology	312
Physics	1832
Plant & Animal Science	292
Psychiatry/Psychology	393
Social Sciences, General	117
Space Science	1301

Thomson ISI Highly cited, available from http://in-cites.com/thresholds-citation.html

* Humanities score created by Amanda H. Goodall as explained in Chapter 2.

Note to Table: The above citation thresholds represent approximately the top 3250 authors in each disciplinary field between 1994 - 2004.

Chapter Three

What is the Relationship (if any) Between Top Universities and Leaders Who are Top Scholars?

Introduction

When looking at the individuals who lead the world's top 100 universities it is possible to find both a handful of Nobel Prize winners and a handful of leaders with few or no research citations. It might be thought from this fact that there is no systematic link between research output and university leadership. Yet there is a pattern. There is a significant correlation between the research background of a leader and the position of their university in a world league table.

The first question, addressed in this chapter through statistical tests using Pearson's correlation coefficient and Spearman's rho, is to ask whether the world's top universities currently appoint top researchers to the position of president. The emphasis here is on the world's leading research universities. This group has been chosen because it is important to understand the actions of successful organisations.

The Collection of Citations Data on Presidents

As mentioned in Chapter 2, the dissertation focuses on one set of variables or characteristics, namely the lifetime citations of presidents. This score is used here as a measure of how research-active and successful a president has been in his or her academic career. The lifetime citation score of presidents is normalised to adjust for different disciplinary conventions.

Data on the presidents of the world's top 100 universities, identified as shown below, were collected between mid-October and early-December 2004. Only those presidents in post during this period are included, and to the author's knowledge, no presidents changed during the time data was collected. Biographical information came from university web sites, though direct requests for CVs were made on occasion. Each president's

lifetime citations were counted by hand and assigned a normalised citation score, or P-score, which reflects both the differences across disciplines and their personal citation levels.

League Tables

As higher education has become global, in the recruitment of international students and staff, so have league tables. International tables have existed for a number of years in areas such as business education through the Financial Times. In 2003 the first global league table of universities was produced by the Institute of Education in Shanghai at Jiao Tong University (SJTU). SJTU used a process of inviting comment through their website to make adjustments to their methodology for the 2004 table. It is their 'Academic Ranking of World Universities' (2004) that is used in this chapter. (See Appendix 1 for the full list of 100 universities).

The UK based Times Higher Education Supplement (THES) produced a global ranking in November 2004 (www.thes.co.uk) which has not been used in this study. There are three main problems with the league table[9]. First, 50% weight is assigned to a subjective 'peer-review' process where 1300 academics across 88 countries are invited to name the top institutions in their geographic area and their academic field. This is the largest component in the ranking yet there is no information available on the background of these global academics. That is a concern. For example, how might an individual's choice have been influenced by their own place of education, sabbatical leave or co-authorship, and so on? Second, 10% weight is given for the international nature of an institution's student body and staff. However, there is little explanation about why 'international' is a proxy for high quality. Finally, because the THES is a

[9] Changes were made to the methodology in the 2005 version of the THES international league table.

commercial organisation it is not possible to access the data or check the calculations.

An advantage of the SJTU table is that it is not produced by a newspaper or magazine. Media-generated league tables are ubiquitous and controversial. Tables, such as those in The Times, and US News and World Report in the US, offer information to potential students across a range of criteria. Media-driven league tables may be useful heuristic devices for students but as objective tools of assessment of university quality they are unreliable. Perhaps the main criticism is that they are produced by commercial organisations designed to make money by selling their publications. Therefore a headline is required. To generate a story, the methodology is changed, often annually, which ensures that institutions at the top rotate (Lombardi, Craig, Capaldi & Gater 2002). Lombardi and colleagues suggest instead that, in the US, university positions actually change very little each year if a fixed method of analysis is used (2002).

The Center for Studies in the Humanities and Social Sciences (*www.thecenter.ufl.edu*) was created as a non-profit organisation in 1998 in the United States. Its mission is to develop methods for measuring and improving university performance. For a number of years *TheCenter* has produced an alternative ranking, 'The Top American Research Universities' (Lombardi et al. 2003).

This ranking differs from media equivalents because actual numbered positions are not assigned. Instead universities are assessed on nine separate measures. Those that score highly in at least one of the nine measures are put into a 1-25 top research university category[10].

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[10] The measures include: total research, federal research, endowment assets, annual giving, national academy members, faculty awards, doctorates granted, postdoctoral appointees and SAT scores. Some degree of ranking does exist because they are ordered depending on the number of points they score across the nine categories. So

The measures of university quality used in both *TheCenter* and the SJTU world league tables do not exactly correspond. However, it is interesting to compare the number of US universities at the top in both tables. *TheCenter*'s top-25 category has 52 universities included. Of these, 44 also feature in the SJTU global table. Positions 1-27 are exactly correlated in both rankings. In other words, these two rankings of top US universities are very similar.

The 'Academic Ranking of World Universities' (2004) league table uses 6 different criteria to assess universities. The Table 3.1 comes from the SJTU web site[11].

There are, arguably, some weaknesses in the SJTU methodology. First, younger universities stand to lose out; particularly in the first category that assigns weight (10%) to alumni awards. Second, the humanities and the social sciences are weakly represented here -- though SJTU have done some adjustment for this. There are no ISI HiCi's in the arts and humanities and far fewer in the social sciences. The Awards category is also limited. Nobel Prizes are only given for achievement in physics, chemistry, medicine/physiology, economics, literature and peace, and Fields Medals only for mathematics.

Data on the 100 University Presidents

It is important to note that the world league table ranks institutions by assigning points (as per criteria above). This can result in two or more institutions being given the same position (see the full list in Appendix 1).

The universities in the top-100 table are dominated by the United States, where 51 of the institutions are located. As can be seen in Figure 3.1, US

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the top three universities score 9 out of 9, the next six universities score 8 out of 9, and so on.

institutions are unevenly spread across the world's top 100, dominating the top 20 with 17 universities, and with 30 in the top 40. Of the 100 total, only 4 in the bottom 20 are US-based. If we treat American states as individual nations, California, with a population of 36 million, has the highest number of leading universities. Ten Californian institutions are within the top 55; 6 of these are in the top 20, and 7 of the 10 are public or state universities.

Thirty-seven institutions out of 100 are located in European countries. Of these, 11 are in the United Kingdom, 7 in Germany, 4 in both France and Sweden, 3 in Switzerland, 2 in the Netherlands, and 1 each in Austria, Denmark, Finland, Norway, Italy and Russia.

Finally, among the top 100 there are 12 universities in the rest of the world -- 5 in Japan, 4 in Canada, 2 in Australia, and 1 in Israel.

The nation location of an institution is not always reflected in the nationality of its president. For example, the top 10 universities are found in two countries -- US (8) and UK (2), whereas the leaders come from four -- Canada, New Zealand, UK, and the US.

There are 15 female presidents in the sample. Six are in the top 20 universities and 10 are within the top 50. North America dominates with 9 US female presidents and 2 in Canada. The remaining four are in Denmark, France, Sweden and the UK.

Every president in the group of 100 universities has a PhD. The majority have been academics though two presidents spent most of their careers in non-research positions in industry or government, and a small group went almost directly into academic administration.

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[11] SJTU have also slightly altered their methodology in recent league tables.

The age of a president potentially affects his or her lifetime citation levels. The older they are, the greater the opportunity to accrue citations. It is therefore necessary to check whether presidents with the highest levels of lifetime citations are in fact older than those with fewer citations. Some European universities still publish date of birth information, though they are in the minority. Birth dates can be loosely calculated by using individuals' age at graduation from first degree. Using this method it is possible to compare the ages of presidents at the top and bottom of the top-100 global league table. If it is shown that the top presidents are markedly older than those in the bottom 20, then adjustment of citation scores would be necessary.

The ages of only 80% of presidents in the top 20 universities and 80% of presidents in the bottom 20 could be obtained. The mean age of presidents in the top 20 universities is 58 years. In the bottom 20 category the mean age of president is 60. Because of the closeness in age between these two groups, and in particular the slightly older average age of the lowest quintile, citation scores have not been adjusted.

Figure 3.2 displays the disciplinary background of the presidents. What is noticeable is the evenness of disciplinary spread across each quintile. Of the 100 presidents, 52 have a scientific background. The scientists are dominated by the life sciences at 50%, but there are also 11 engineers, 6 physicists, 5 chemists and 4 computer scientists.

Thirty-seven of the 100 presidents are social scientists. The largest disciplinary group among the social scientists is that of lawyers, who number 15. Within a second group of 16 there is an even spread of educationalists, political scientists, sociologists and those from public and social policy. Finally, there are 6 economists.

Eleven presidents are from the arts and humanities. This group is noticeably smaller. Taylor (1986) documents the disciplinary distribution amongst vice chancellors and principals in the UK in 1986. He also cites earlier work by Collison and Millen (1969) who showed that in the UK between 1935 and 1967 the proportion of presidents from the arts declined from 68% to 48% while scientists rose from 19% to 41%. Taylor then reports his own findings, that by 1981 67% of vice chancellors and principals were scientists, 13% from the social sciences and less than 20% were from the arts. Cohen and March (1974) showed a similar pattern -- in the number of presidents from the arts - for the US between 1924 and 1969.

In a study by Dolton and Ma (2001) on CEO Pay, the disciplinary backgrounds of UK vice chancellors are reported. Drawn from a wide cross-section of British universities (including Oxbridge, civic universities, former colleges of advanced technology, among others), they note that VCs in position in 1999 included 3% lawyers, 13% engineers, scientists made up 25%, social sciences including business 36% and finally VCs from the arts and humanities made up 13%. 10% were reported as being non-academics.

Of the 100 presidents in this sample, 12 are ISI Highly Cited (HiCi) academics. These individuals are more common in the top universities. Of the 12 presidents in HiCi, 6 are in the top 20 group of universities, 3 in the next 20, 2 in the next and 1 in the fourth quartile. Finally, there are 3 Nobel Prize winners among the presidents (all in medicine) -- two in the top 20 and one in the 20-40 category.

The distribution of citations across the 100 presidents fits Lotka's Law, an application that is often used in bibliometric research. Lotka (1926) describes the frequency of publication by authors in a given field. As can be observed in Figure 3.3 using presidents' P-scores, a version of this

law applies here. Lotka's power law predicts that of all the authors in a specific field, approximately 60 percent will publish just one article, 15 percent will have two publications, 7 percent of authors will publish three pieces, and so on (Potter 1988). According to Lotka's Law of scientific productivity, only 6 percent of the authors in a field will produce more than 10 articles (the number making n contributions is about $1/n^2$ of those making one). This law is most accurate when applied over long periods of time and to large bodies of work -- for example individuals' lifetime citations.

The Results

As outlined in Chapter 2, the 100 presidents' lifetime citations are represented by a normalised P-score.

The individual citation scores of the 100 presidents, before adjustment, range from 0 to 28,718. The mean citation score is 2731 and the median is 371. After adjusting for discipline, the highest P-score is 37 points and the lowest is 0. The mean P-score is 6.03 and the median is 2.27. When the group of 100 is split into two, the top leaders of the 50 universities have a mean P-score of 8.76 and a median of 4.57, and those in the bottom half of universities have a mean P-score of 3.30 and a median of 0.93. Of the total group of 100 presidents, 4 have a citation score of zero.

The results are presented here in scatter plots and cross tabulations - that are grouped into quintiles (the '1-20' group always refers to the top of the SJTU table and 1 equals Harvard).

The most highly ranked universities have leaders who are more highly cited. Figure 3.4 shows this. It gives a cross-sectional breakdown of P-score by university rank in quintiles. This shows a monotonic decline in citation levels as the universities go down in world rank.

The next step is to try to establish statistical significance. The chapter does this in two ways.

A natural first approach is to test whether the rank ordering of one variable is correlated with the rank order of the second variable. Spearman's rank correlation coefficient is an appropriate measure[12]. The highest P-score is ranked 1 and the lowest P-score is ranked 100. The actual rank of presidents' P-scores is then tested for a correlation against university rank.

Using these data, Spearman's rho is calculated at 0.378. With 100 observations the associated 5% critical value for a two-tailed test is 0.195, and at 1% it is 0.254, which establishes that the correlation is statistially significant at conventional confidence levels.

A second approach can be seen in Figure 3.5 which gives the distribution of the 100 individual P-scores by world university rank. Using Pearson's coefficient (r), the degree of linear relationship between the 'rank of university' and 'president's P-score' can be examined. For the data in Figure 3.5, Pearson's r is 0.345. The 1% critical value on a two-tailed test is 0.254, which means again, that the relationship is statistically significant[13]. There continues to be a statistically significant relationship if the natural logarithm of P-score is used; this can be seen in Figure 3.5a

This correlation, between cites and university quality, can also be seen amongst the sub-sample of female presidents, though at 15 the group is small (Figure 3.6). It is also statistically significant at the 1% level. The

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[12] Spearman's rank correlation coefficient is the test used to measure the relationship between two sets of ranked or ordinal data. Alternatively Pearson's correlation coefficient is used to measure the relationship between normal distributions.
[13] It should be noted that there is evidence that the residuals are skewed.

disciplinary breakdown of the 15 female presidents is 7 scientists, 7 social scientists and 1 from the humanities. One president is Highly Cited.

US universities make up 51 out of the 100. The mean P-score for this US group is 8.07 with a median score of 4.86, which is higher than the world group mean of 6.03 and median of 2.27. There are 25 scientists, 21 social scientists and 5 in the humanities. Of the 12 Highly Cited presidents in total, 9 are based in US universities, though two of these are non-Americans -- 1 is from Canada and 1 from the UK, who is also a Nobel Prize winner.

Figure 3.7 presents a scatter plot for the sample of US presidents. Again there is a correlation between citation levels and (world) university position. The correlation is significant at the 1% level.

It is useful to note that university rank explains only 12% of the variance in leaders' citations. In other words, there are many other explanatory factors that are not being measured here. However, these correlations are significant enough to warrant further investigation and discussion.

Is the citation-rank correlation true for universities outside the US?

So far we have identified a strong positive relationship between the citation levels of university presidents and the position of their institution within a ranking of 100 universities. This association exists amongst the 100 presidents in total, the female group, and the 51 US presidents.

The mean citation P-score for presidents in the 49 countries in the rest of the world is 3.91 with a median score of 1.07. This is below the 100-group mean P-score of 6 and it is half the US mean P-score of 8. Therefore US presidents are twice as cited as those in the rest of the world.

In the rest of the world the presidents include 27 scientists, 16 social scientists and 6 in the humanities. There are 3 Highly Cited researchers in the group. Two are from the Netherlands and one in Germany.

Figure 3.8 shows there is no statistically significant correlation between citation levels and position of president across the 49 countries in the rest of the world.

As can be seen in the data, one of the differences between the top American universities and non-American universities is that the former choose leaders who are more highly cited.

Outliers

It is important to ensure that the results from this study have not been unduly influenced by a small number of presidents with extremely high P-scores. To do this, two tests are available. First, we can return to Spearman's rho, which puts an equal weight on each observation instead of assigning continuous values. As has been pointed out above, a statistically significant rank correlation has been established, with a significance level better than 1%.

The second check on outliers is simply to delete the data used from the highest P-scores for the Pearson's test. To do this the top 5% of P-scores, all located within ranges 30 and 40, were withdrawn and the correlation re-tested, with a result of 0.297. With 95 observations the 5% critical value for a two-tailed test is 0.200 and at 1% it is 0.260, so the correlation remains.

Discussion

Data on world university rankings have only recently become available. That universities with strongly research-intensive missions appoint as their presidents men and women with strong citation records does not appear to have been previously documented. The data in this chapter do not enable judgements to be made about the weight assigned by selection committees to the research records of presidential candidates as distinct, for example, from other criteria such as managerial expertise or entrepreneurship. But the data do suggest that research universities look for candidates who fit institutional missions.

These findings show that in at least one area the top universities are making different choices from those lower in the global ranking. On average, the higher the university is in the global league table, the more highly cited is that institution's president. There are, of course, exceptions. Two universities from the Netherlands -- in positions 39 and 63 -- both have presidents who are Highly Cited. (It is interesting to note that these are the only two universities in the top 100 from that country). And there are top universities led by presidents with few or no citations. However, these cases are in a minority.

It is possible that the correlation can be explained through unobservable heterogeneity. This would mean that research talent is merely a proxy for leadership ability. The positive relationship between presidents' P-scores and university rank may actually be picking up a correlation between other variables. For instance, presidents who are good at research may just be good at everything. This is the alternative to a cause-and-effect relationship. All correlations are potentially susceptible to this kind of criticism. It seems implausible however that candidate's research records do not play a part in their selection for headship of institutions with prominent research missions.

Concluding Comments

This chapter finds a correlation between the citations of presidents and the positions of their universities in a world league table. Better universities are led by more highly cited researchers.

The statistical relationship is strong for the group of 100 universities as a whole, and for the sub-samples of female presidents and US presidents. On average, one extra point on a president's adjusted citation score, where scores run from zero for the least-cited president to a score of up to 40 for Highly Cited and Nobel-prize winning presidents, is associated with ten extra places in the world's top-100 ranking of universities. No statistically significant correlation is found, however, for the sub-sample of universities from the rest of the world.

Simple quantitative research of this kind may offer insights into university leadership - insights that are particularly relevant to universities that want to compete for a position amongst the world's top research institutions. The best universities, which can choose from the widest pool, are systematically selecting top researchers to lead them.

Causality cannot be established through these correlations. The performance of a university has not been shown here to be linked to the actions of a president or vice chancellor, whether highly cited or not. However, this type of research starts the process of understanding whether there may be benefits from appointing a researcher as president.

An interesting next step might be to find out whether a similar pattern exists in a substantial unit within a university, for example a school. This thesis argues that all heads of major strategic units in research

universities should possibly be headed by scholar-leaders; units where the core business is research and teaching.

In the next chapter the focus moves onto deans of business schools.

Table 3.1

Methodology used in SJTU ranking 2004

Criteria	Indicator	Code	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	Alumni	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	Award	20%
	Highly cited researchers in 21 broad subject categories	HiCi	20%
Research Output	Articles published in Nature and Science*	N&S	20%
	Articles in Science Citation Index-expanded and Social Science Citation Index	SCI	20%
Size of Institution	Academic performance with respect to the size of an institution	Size	10%
Total			100%

* For institutions specialized in humanities and social sciences such as London School of Economics, N&S is not considered, and the weight of N&S is relocated to other indicators.

Figure 3.1
The Cross-Country Distribution of the World's Top 100 Universities

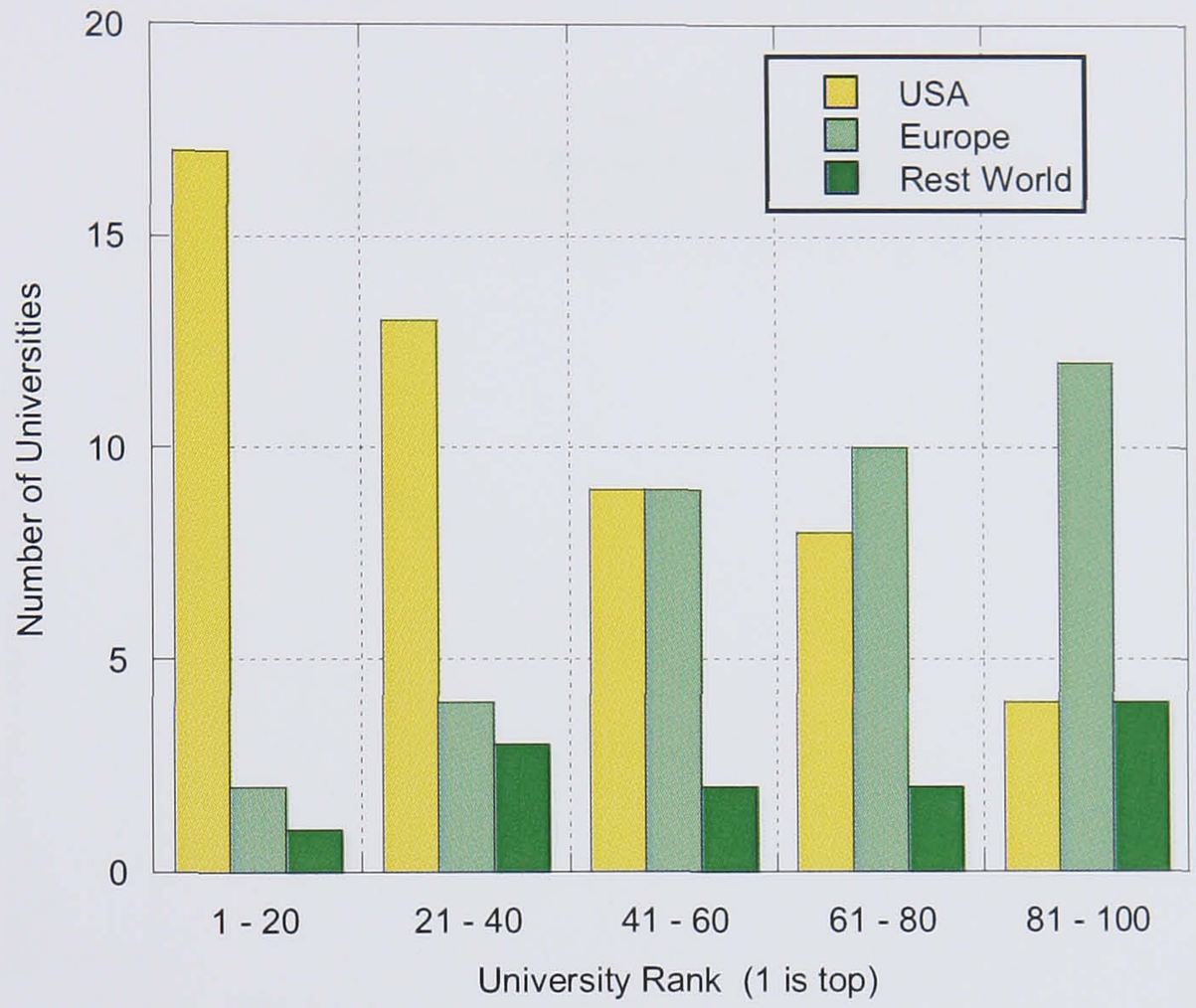


Figure 3.2
The Disciplines of the Presidents of the World's Top Universities

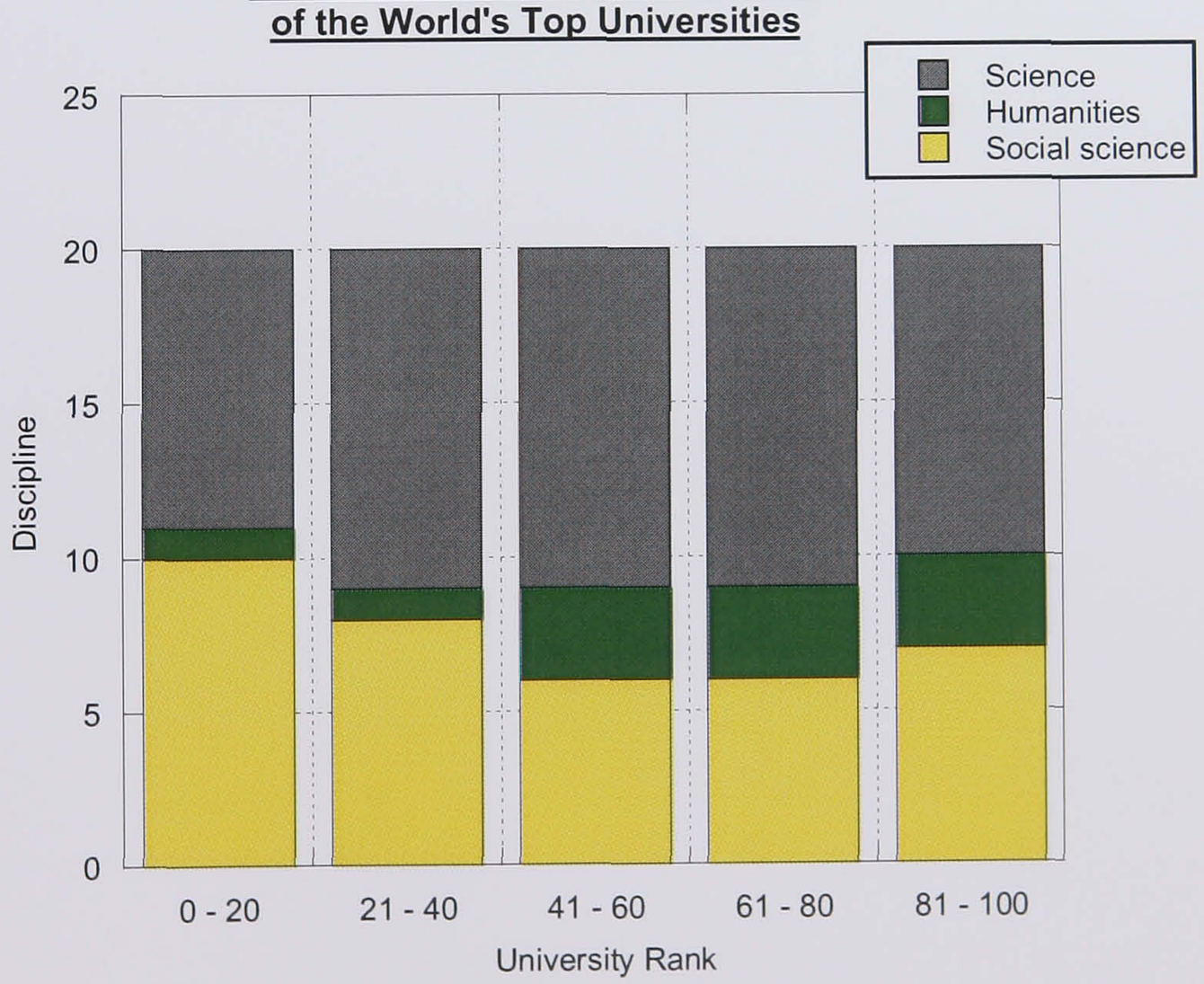


Figure 3.3
The Distribution of Presidents' Lifetime Citations Follows Lotka's Power Law

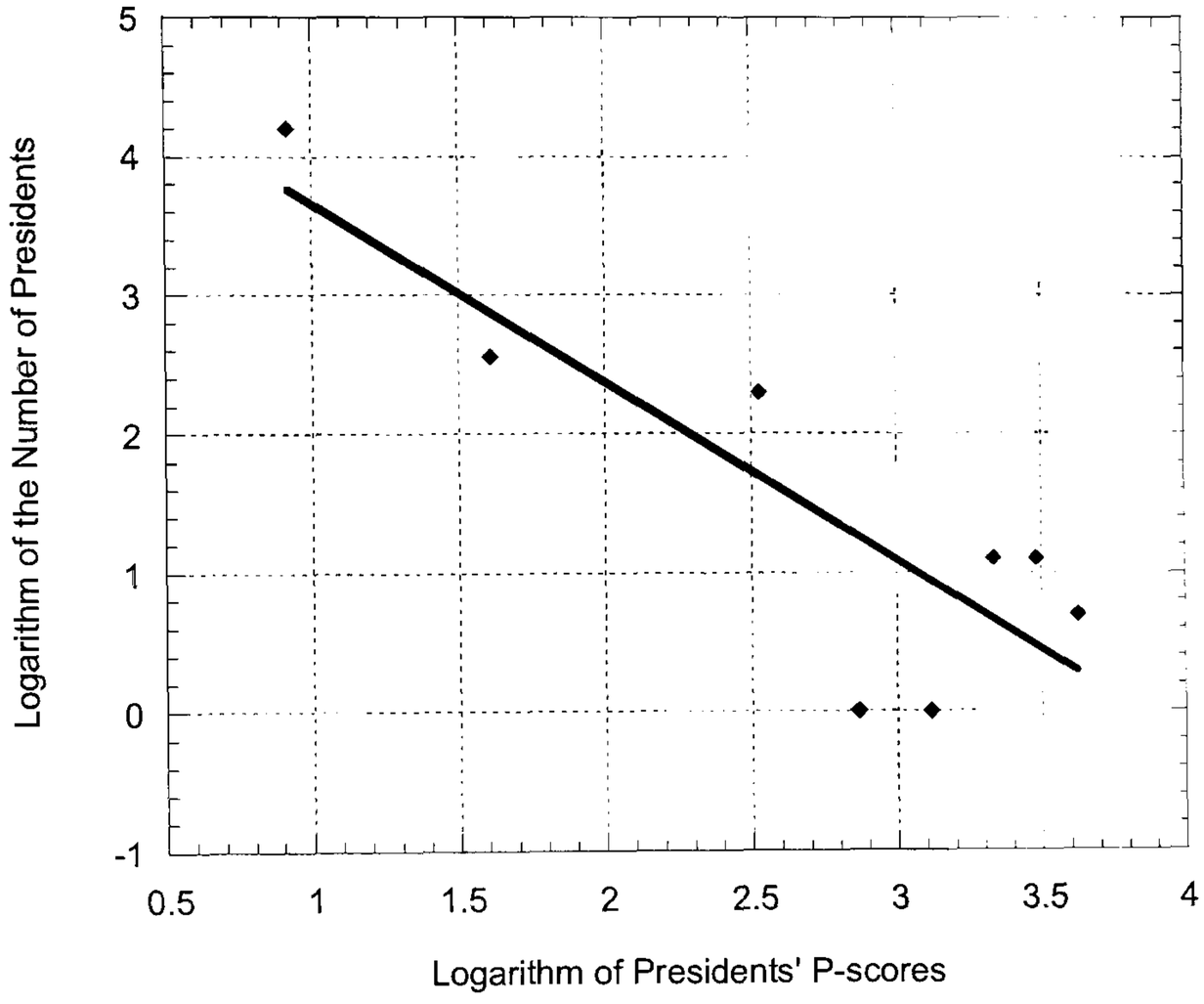


Figure 3. 4
A Cross-Tabulation of Presidents' Lifetime Citation P-scores by World University Rank
(in quintiles)

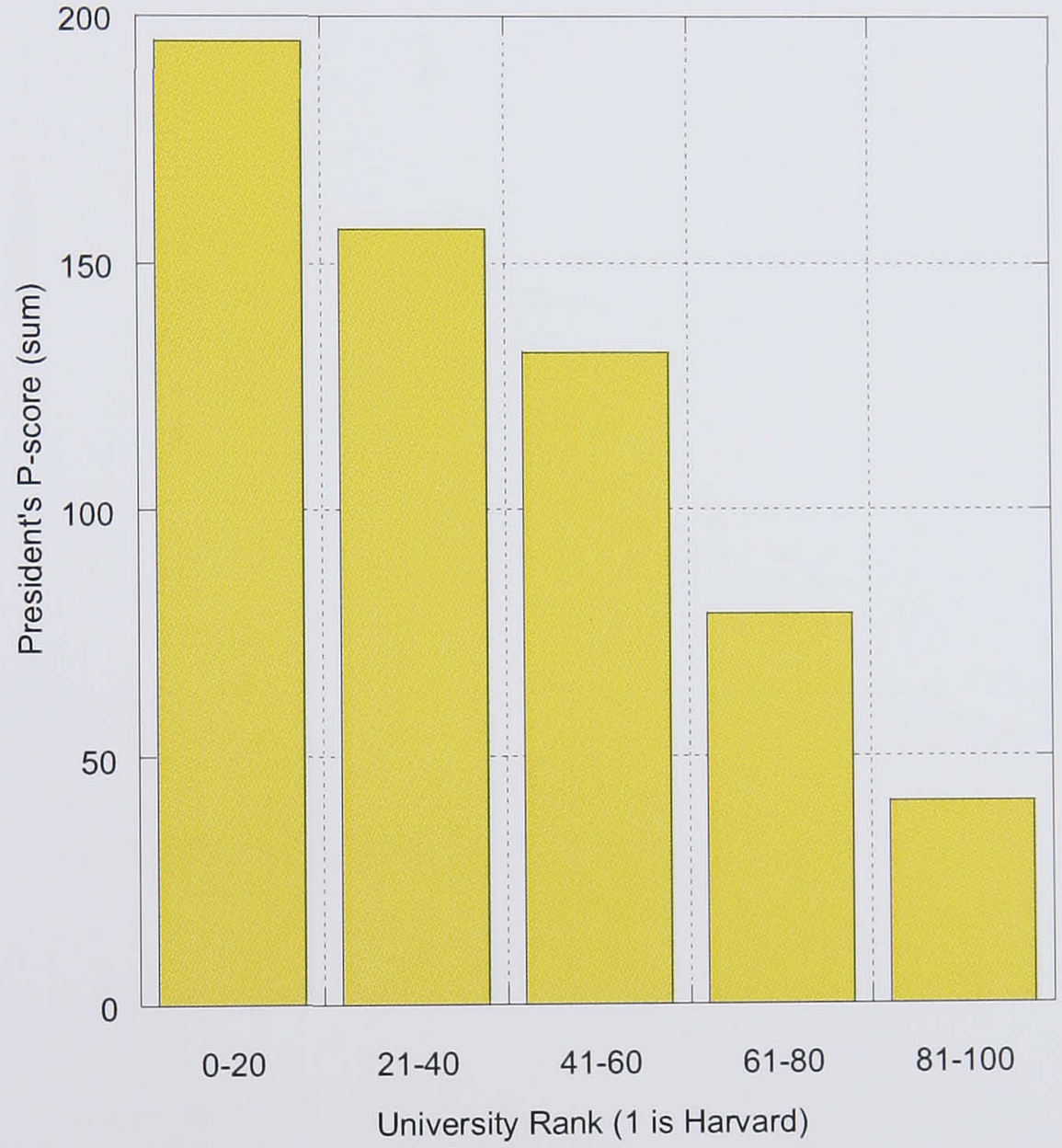


Figure 3.5
Presidents' P-scores by Rank among the World's Top 100 Universities
(P<0.001)

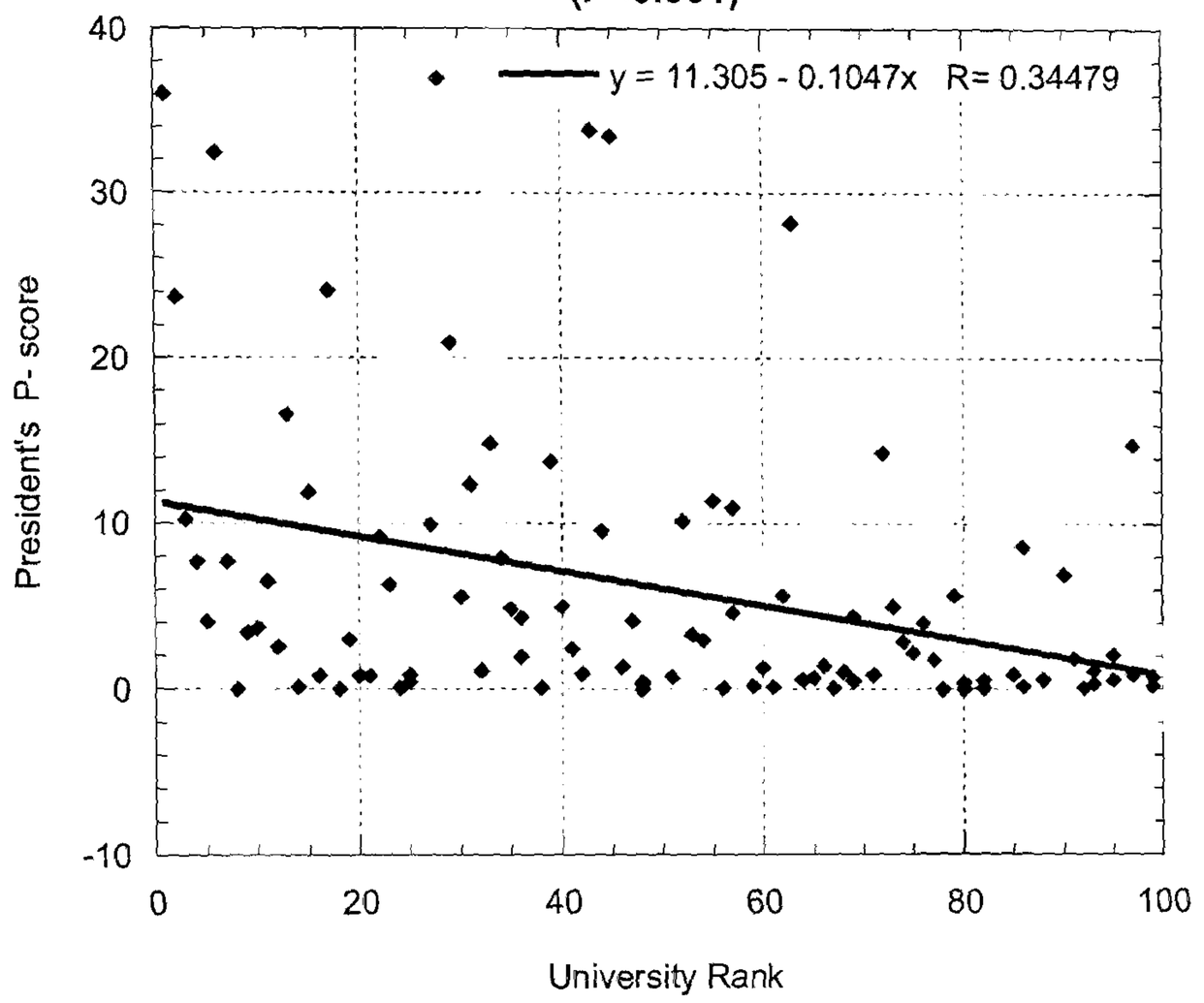


Figure 3.5a
Logarithm of Presidents' P-scores by University Rank
(P<0.01)

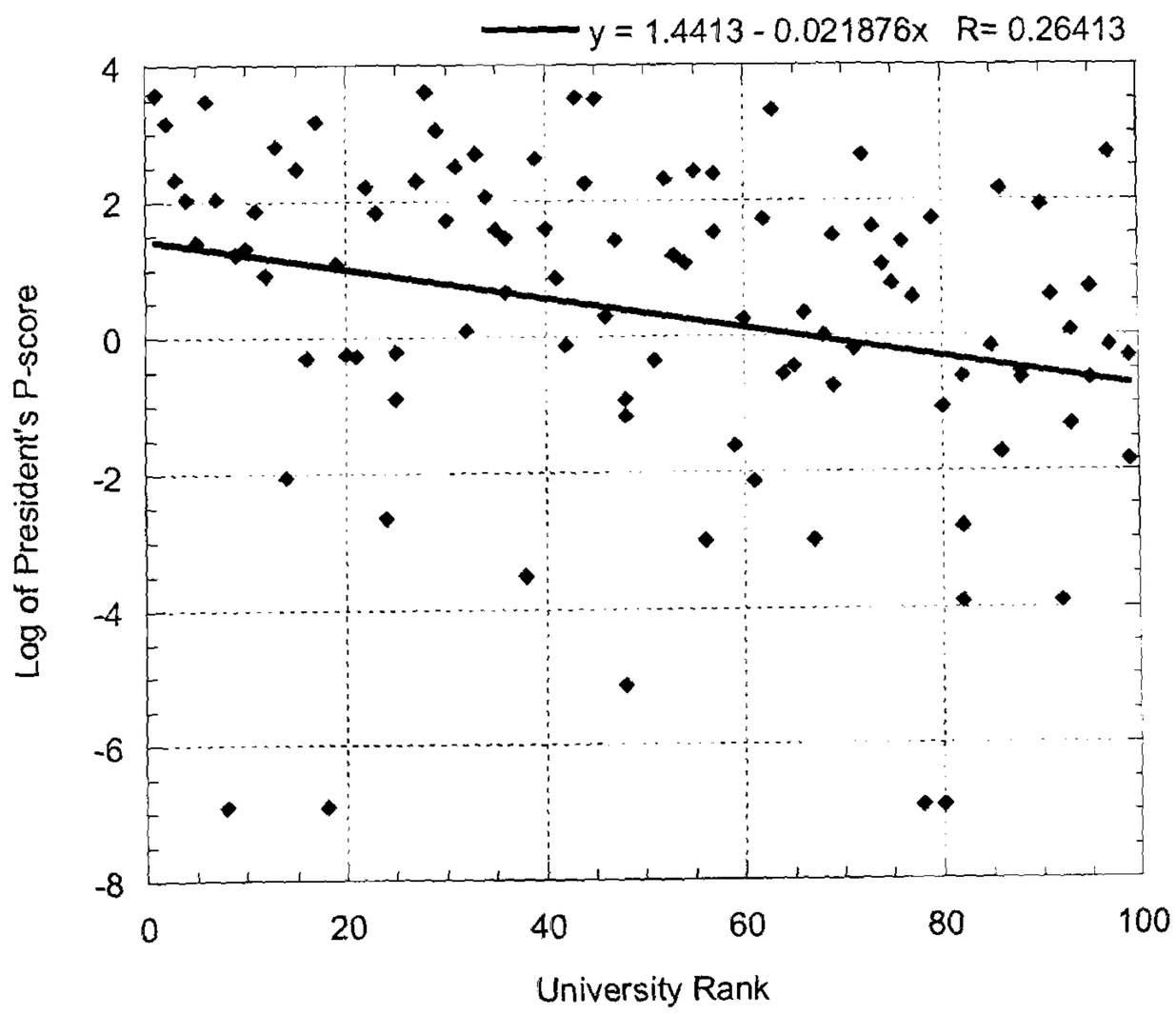


Figure 3.6
Female Presidents' P-scoresby University Rank
(P<0.01)

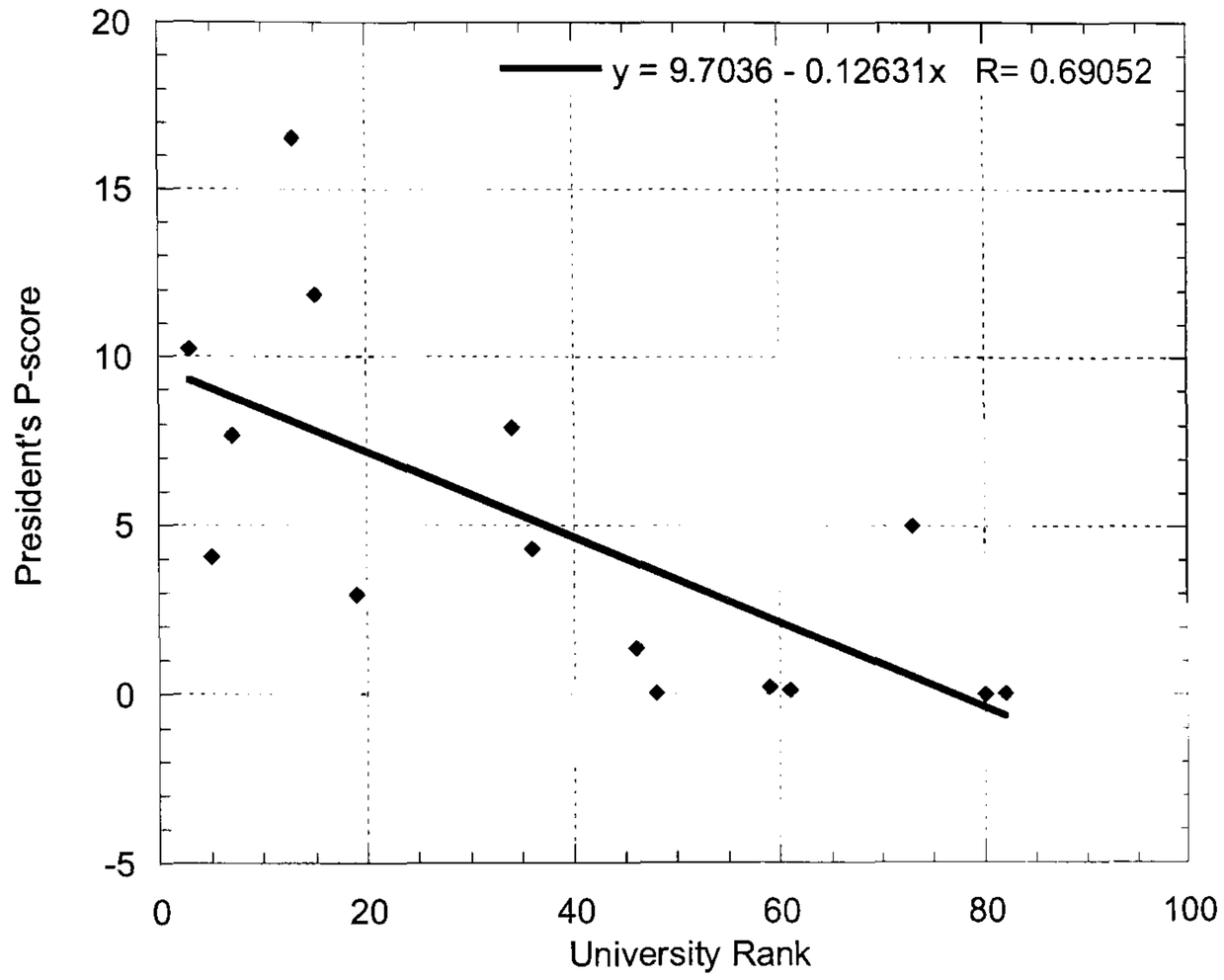


Figure 3.7
US Presidents' P-scores by University Rank
(P<0.01)

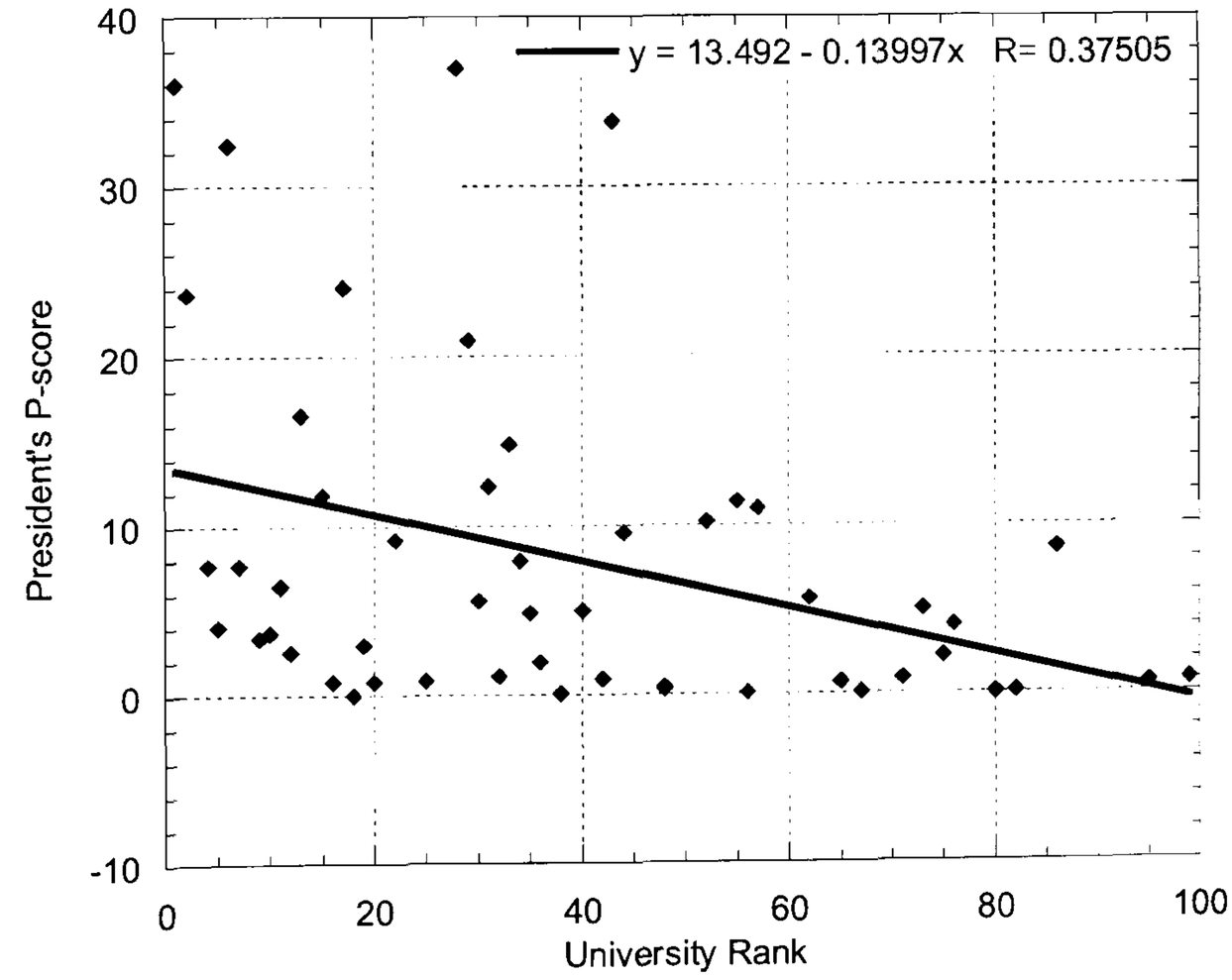
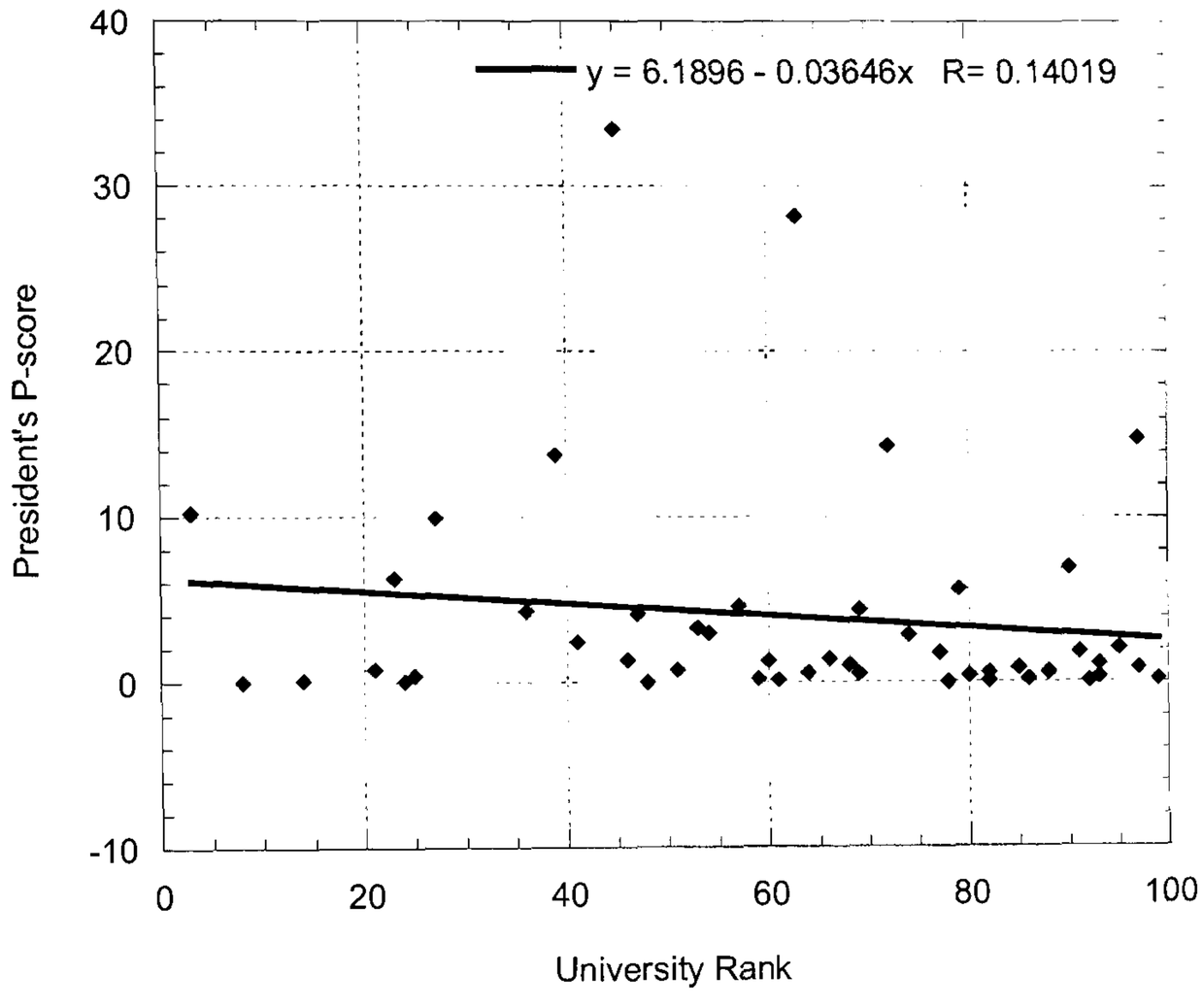


Figure 3.8
Presidents from the Rest of the World
P-scores by University Rank



Chapter Four

Are Top Business Schools Led by Top Scholars?

Introduction

This chapter presents a second empirical contribution, again a correlation. It shows that business schools that stand higher in the Financial Times Global MBA ranking have deans with systematically higher levels of life-time citations. The robustness of this finding is reinforced since the same significant correlation is found, using a different performance measure in another data set, among UK business and management schools.

The question of whether it matters if a leader has been a scholar has also circulated around business schools for a number of years. In principle, every Dean Search Committee grapples with this issue. Yet to the author's knowledge there appears to have been no previous empirical research on business schools.

One of the major challenges for business and management disciplines is trying to straddle two communities – research and practice. Publishing output is expected to be both scholarly and relevant (Augier & Teece 2005). The potential conflict has generated considerable debate (see for example Hodgkinson et al. 2001, Starkey & Madan 2001, Pettigrew 2001, Dossabhoy & Berger 2002, Aram & Salipante 2003, March 2003, Gosling & Mintzberg 2004, Stiles 2004, Bennis, & O'Toole 2005, Zell 2005).

A statement from one of the leaders interviewed for this thesis describes this:

- *"The primary business of a business school is the same as a university – teaching and research, and administration. But with a business school there are another two objectives – to have credibility with the profession and have a high external profile amongst the business world, and second, to facilitate a twin-track of publishing –*

Academic journals and also applied publications." George Bain, former VC Queens University, Belfast and also former dean of Warwick Business School and London Business School.

Because of the somewhat more complex brief of business schools in comparison to universities, it might perhaps be expected that there would be no relationship between a dean's life-time citations and the position of their school in an international ranking. Yet once again a correlation exists.

Financial Times Global MBA Ranking

As suggested in the previous chapter, media-generated university league tables may be useful heuristic devices for students, but as objective tools of quality assessment they can be unreliable. Rankings also exclude factors such as an institution's history, reputation and wealth. However, it could be argued that because business schools are relatively new additions to the academy, and they are small in comparison with universities, there is a greater possibility of movement within league tables or other performance measures.

The Financial Times produces one of the more consistent league tables. It has the advantage that the methodology used for assessment remains largely unchanged each year. The FT league table is also chosen here because it is internationally recognised[14].

The FT ranking began as a European survey of 49 business schools in 1998 and developed into a worldwide league table of 75 schools in 2000. This number was extended to 100 in 2001.

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[14] Available from: www.rankings.ft.com

To construct its ranking, the FT assigns 55% of weight to alumni survey returns, relying on criteria such as salary and career progress. Twenty-five percent is put on business school characteristics -- for example, measuring diversity of staff and students, and the extent to which a school is internationally recognized. A final 20% is allocated for research quality; 5% for faculty with PhDs; 5% on the number of doctoral grads taking a faculty position at one of the top 50 schools; and 10% for the number of faculty who publish articles in 40 named academic journals.

The FT ranks institutions by assigning points; therefore, this can result in two or more institutions being given the same position.

Data on the 100 Business School Deans

The sample in this chapter includes 100 business school deans, two of whom are acting-deans. Their scholarly backgrounds are almost exclusively in the social sciences. Because of the disciplinary homogeneity across deans, there is no need to normalise citations. Data on the 100 deans were collected between June and July 2005. Only those deans in post during this period are included[15]. Each dean's lifetime citations were counted by hand. These cover citations to both journal articles and monographs.

Of the 100 business schools in the FT MBA (2005) ranking, sixty-five are located in North America. Fifty-eight of these are in the US and 7 in Canada. Twenty-six schools are based in European countries. Of these 14 are in the United Kingdom (UK), 3 each in France and Spain, 2 in Ireland and 1 each in Switzerland, Netherlands, Italy and Belgium. Finally, 9 of the 100 schools are spread across the rest of the world.

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[15] With the exception of one dean who was appointed two months after this period.

There are 2 schools each in Australia, Hong Kong and Mexico, with one each in Brazil, China, and South Africa.

Only 11 deans in the FT Top-100 are women. Six of these are located in US schools, 3 in the UK, and one each in Canada and Brazil.

With regards to deans' backgrounds, 9 of the 100 have come from the business sector and not from academia, though 2 of the 9 have PhDs. Most of the deans in the sample have had traditional academic careers. Over a quarter of the deans define themselves as professors of management, business administration, strategy or entrepreneurship. In addition, there are 18 economists, 13 are from finance and 6 from accounting. Marketing professors account for 7, organizational behaviour and industrial relations 6, and finally 7 in operations and information management, operational research and risk management.

The age of deans may potentially affect their life-time citation score, because those who are older have had the greatest opportunity to accrue citations. So, for example, if the deans with low numbers of citations can be shown to be significantly younger than those deans with high life-time scores, age could be influential. However, inspection of the age profile of deans in the data of this study finds that there are no major age differences between those with the highest and lowest citation scores.

Results

The individual life-time citation scores of the 100 deans in this study are in the range 0 - 3378. The mean citation score is 355 and the median score is 103. There are three deans with scores over 2500 cites. Twenty deans have a citation score of zero.

It is useful to begin by splitting the group of deans in half. Among those who run the world's top-fifty business schools, the mean citation score of the deans is 447 and the median 183. The mean citation score of the next 50 deans is 263 and the median is 52. These data are presented in averages in Figure 4.1. The bar chart shows that the first 50 deans in the FT Top-100 collectively have just under double the citations of those in the second group.

To test for statistical significance, two checks are applied. The first is a calculation of Spearman's rho. It tests whether the ordering of one variable (the position of a business school) is correlated with the ordering of the second variable (a dean's life-time citations). The highest citation score is ranked 1 and the lowest is ranked 100. As an alternative, this is followed by a calculation of Pearson's correlation coefficient (r). Each dean's citation score is regressed against the position of their business school to try to establish whether there is a statistically significant relationship between the position of a school in the FT table and the citation score of a dean. For clarity, full scatter plots are presented.

Using these data, Spearman's rho is 0.274. With 100 observations, the associated 5 per cent critical value for a two-tailed test is 0.195, and at 1 per cent it is 0.254. Hence the correlation between leader's rank and school's rank is statistically significant at $p<0.01$.

Using Pearson's coefficient (r), the degree of linear relationship can be examined between the position of a business school and the citation score of a dean. Figure 4.2 presents a scatter plot showing 100 deans' citation scores plotted against the FT global ranking of business schools. Pearson's r is 0.288. The 1 per cent critical value on a two-tailed test is 0.254, which means, again, that the relationship is statistically significant at $p<0.01$.

Could the results be driven by outliers?

Conspicuous in Figure 4.2 are three distinct outliers -- those individuals above 2500 citations. When the same test is applied but this time to the logarithm of a dean's citations, Pearson's r is 0.275 which is significant at $p<0.01$. When the three outliers are removed from the data, as in Figure 4.3, Pearson's r increases to 0.351, which is now significant at $p<0.001$. This suggests that the results are not driven by these outliers.

Does the correlation exist in US business schools?

The US dominates the FT league table with 58 business schools. Of the top 20 schools, 15 are located there. Fifty-eight US deans are in the sub-sample. The mean life-time citation score of the US deans is 449 and the median 210. As can be seen in Figure 4.4 when Pearson's r is applied to the US group once again the relationship is found. The one per cent critical value for 60 observations is 0.408, and Pearson's r for the US deans is 0.419 which is significant at $p<0.001$.

These tests show that there is a statistically significant relationship between the position of a business school in the FT ranking and the life-time citations of its dean. The higher the school is in the league table, the higher the dean's citations. On average, six extra citations gained by the dean equate to one move up the FT ranking for a business school. Equivalently, 600 extra citations will, at the mean values, move a school from the bottom of the FT Top-100 to close to the top. The correlation holds for the full group of 100 deans and also for the sub-sample of 58 US deans.

Interestingly, when this test is applied to the group of 43 non-American institutions only, there is no statistically significant correlation between the rank position of a school and a dean's citation score. This non-US result

raises a number of questions. Could it be a reflection of bias of English language or US journal publishing? Or do the top US business schools perhaps favour research more than the non US institutions? It is not feasible to answer these questions here. But it is possible to isolate a single country from the 100 sample and run the same test to identify whether a similar pattern exists[16].

Does the same correlation hold in different data on a sub-sample of UK business schools?

After the United States, the UK, at 14, has the second-highest number of business schools in the 2005 FT Top-100 table. The UK seems an appropriate nation to focus on because language parity means that publishing and citations biases may be somewhat minimised. Also, the UK has a potentially useful objective measure of quality, namely the so-called Research Assessment Exercise. The Research Assessment Exercise (RAE) was set up by the UK Government in 1986 to assess, with the aid of expert peer review, the quality and quantity of research being generated in UK universities.

The RAE Unit of Assessment (UoA) for business school submissions is 'Business and Management Studies'[17]. The year used is 2001, which was the last time the RAE assessment panels reported. Each submission is of a whole university department.

Only those units of assessment that achieved a score above 4D in the 2001 RAE are included here. RAE UoA scores range from '5A Star' at the very top end with the 'A' signifying that all staff in the field of business

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[16] For an alternative research ranking of European business schools see Baden-Fuller, Ravazzolo & Schweizer (2000) and for Canada see Erkut (2002).

[17] RAE results available at www.hero.ac.uk/rae/Results/. For a review of UK management submissions to RAE 2001 see Bessant et al. (2003), and for a review of the journals cited in the business and management submissions in RAE see Bence & Oppenheim (2004) and Geary, Marriott & Rowlinson (2004).

in a given university have been submitted for assessment. The scores go down to 1D, at the very lowest level, where D signifies that only a small minority of staff have been submitted. The reason in the present study for drawing a line at RAE grade 4 is because a quality-threshold allows comparison with schools in the FT Top-100 (2005). Of the UK business schools that made it into the FT ranking in the equivalent RAE year of 2001, the lowest RAE grade of a UK school included was 4D.

In 2001 there were 38 units of assessment in Business and Management Studies in UK universities rated 4D and above. Sixteen submissions scored in the 5s, and 22 scored in the 4s. Thirty-six of the 38 business schools are located within comprehensive universities. Only two are stand-alone business schools.

The next step is to test whether a similar correlation exists between the 38 UK business schools (or units of assessment) and the research history of those deans in place in 2001. Again the life-time citations of the 38 deans were hand counted. RAE scores are used here to rank the position of a school or UoA. The top UK school, London Business School with '5A Star', is ranked 1; the second two schools, Lancaster Business School and Warwick Business School with '5B Star' are ranked 2; and so on down to those schools rated 4D in the RAE, who for this study, have been assigned a ranking position of 9.

The maximum recorded number of life-time citations of a dean in the 38 British schools is 1600 and the minimum is zero. The mean leader-citation score among departments rated in the 5s is 379, and the mean citation score of those in the 4s is 150. This implies that deans running departments in the former group are two-and-a-half times more cited than those in the second column of departments that scored in the 4s.

Figure 4.5 presents a scatter plot of the 38 UK deans' citation scores plotted against the RAE ranked position of business schools. Pearson's r is 0.452. The 1 per cent critical value on a two-tailed test for 40 observations is 0.393, which means that this negatively-sloped relationship is statistically significant at $p<0.01$. An increase of 65 citations obtained by a dean is equal to one move up in the RAE for a unit of assessment.

It is perhaps useful to note that business school rank explains approximately 10% of the variance in leaders' citations. As would be expected, there are other explanatory factors that are not being measured here.

Summary

Again in this chapter a correlation is reported. It offers simple evidence that the higher a business school is in the FT Top-100 ranking the higher are the lifetime citations of its dean. The correlation is found for the international group of 100 business schools, for 58 US schools, and, in a different data set, for 38 UK university business schools in the 2001 Research Assessment Exercise. For the sake of clarity, full scatter plots are reported. The correlation is robust to the exclusion of outliers and a logarithmic transformation of the variables.

This finding is consistent with that of the previous chapter except that the relationship between presidents and the position of their universities is marginally stronger than that between deans and business schools. Given the above-mentioned debate in business schools, about reaching a balance between academic and applied research, this seems interesting.

The study's contribution is that it provides the first formal evidence that top business schools systematically appoint researchers as their leaders.

Its limitation is that the data are, again cross-sectional, and, therefore, causality cannot be established. This issue is addressed in the next chapter.

Interpretation of Findings in Chapters 3 & 4

These findings suggest that those universities and business schools at the top of the global rankings are behaving differently from institutions lower down. Better scholars are leading better universities and business schools. Cross-sectional analyses can be indicative of causality but, of course, they are not sufficient to establish a causal relationship. Nevertheless, the empirical evidence presented in Chapters 3 and 4 seems interesting and apparently robust.

Why are universities and business schools that are higher in league tables led by leaders with stronger publication records?

Four interrelated explanations are:

A. Top institutions are more likely to seek out top scholars as presidents and deans.
B. The best institutions are more attractive to the best scholars.
C. The correlations might be a statistical coincidence of this time period.
D. The relationships are explained through unobservable heterogeneity.
E. Presidents and deans who have been successful scholars are more likely to improve the performance of a university or business school.

Possibility A -- Top institutions are more likely to seek out top scholars as presidents and deans.

It is possible that an Ivy League university will always appoint a president or dean who has either worked at an Ivy institution or studied at one. In UK universities, there is little movement in vice chancellors between those leading older research universities and those in former polytechnics or newly established universities (Bargh et al., 2000). Who gets appointed may be a factor of the universities that house business schools. For example, business schools within universities that have a strong research focus may be more likely to conform to this culture (Bennis & O'Toole, 2005). Similarly, it could be argued that if a leader of a university, who appoints deans, is themselves a top scholar, he or she may appoint other scholars into key leadership positions. In short, like may appoint like.

Top universities and business schools are also better placed to attract top candidates because they have access to greater resources, and therefore can provide better facilities and salaries.

Alternatively, university and business school governors or board members may wish to use the appointment of a scholar to signal a change in institutional strategy. Signalling may be of symbolic importance both to internal and external stakeholders. Some illustrative statements from the interviews in Chapter 6 express these ideas.

> "Appointment of a top researcher sends an internal signal to colleagues that research success in the institution is important", Amy Gutmann, President, University of Pennsylvania (interview April 28, 2005).

"An appointing board can signal a sound understanding of the culture of a research university by appointing a recognized scholar with administrative ability to a top leadership position", John Heilbron, former Vice-Chancellor of Berkeley (personal correspondence July 2004).

"By having an academic at the helm, the university is stating clearly what it values most highly," Shirley Tilghman, President, Princeton (The Daily Princetonian, October 24, 2005).

"A top scholar is more likely to be of interest to the media. And a high media profile can be very useful with brand growth, fundraising and alumni relations", Mary Blair, Director of Fundraising at the London School of Economics, (personal correspondence 2005).

Possibility B -- The best schools are more attractive to the best scholars

This is the idea that candidates who have been successful scholars will be more attracted to higher-status business schools. It offers an explanation that is the mirror image of A in that there is a match between the selector and the selected and that this represents a better investment return. Economists might describe this as a form of rational assortative matching (Becker, 1973).

Possibility C – The correlation is a statistical coincidence of this time period.

It is unlikely that the results in Chapter 3, replicated in chapter 4, have occurred through statistical coincidence. This is confirmed in Chapter 5.

Possibility D – The relationship is explained through unobservable heterogeneity.

This would mean that research talent is merely a proxy for leadership ability. The positive relationship between leader's citations and institution rank may actually be picking up a correlation between other variables. For instance, presidents who are good at research may just be good at everything. This is the alternative to a cause-and-effect relationship.

All correlations are potentially susceptible to this kind of criticism. It seems implausible, however, that candidates' research records do not play a part in their selection for headship of institutions with prominent research missions.

Possibility E - Leaders who have been scholars improve the performance of universities and business schools

Option E proposes that there may be a link with organizational performance in that those deans with strong publishing records contribute something extra to the role of leader. This hypothesis suggests that universities and business schools perform better if led by a scholar. Evidence contributing to this argument is presented in the next chapter, and theoretical explanations are further developed in Chapter 7.

Figure 4.1
The Relationship between Deans' Mean Lifetime Citations and Business School Quality

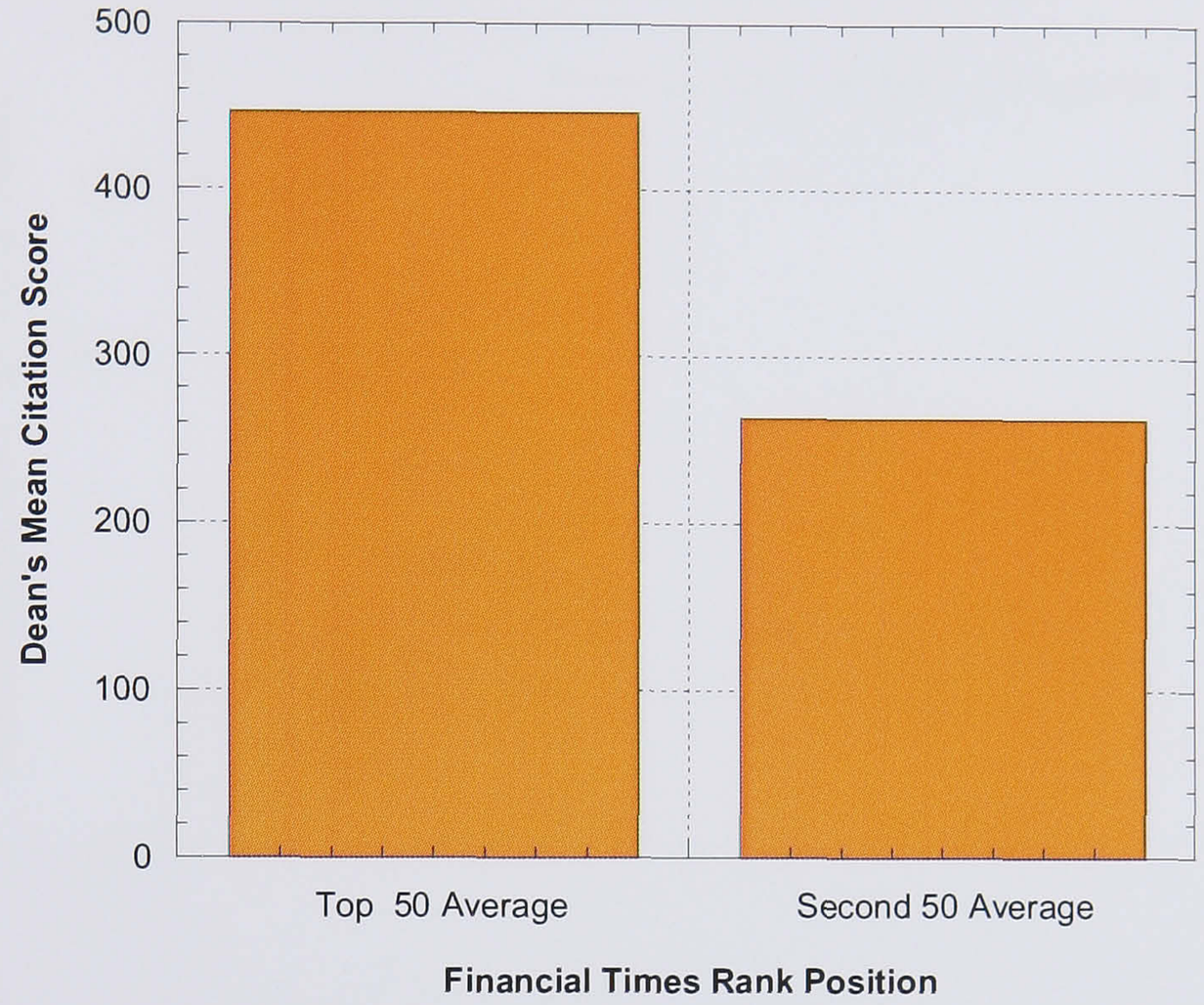


Figure 4.2
The Relationship between Deans' Life-Time Citations and their Schools' Position in the FT Top 100 Ranking (p<0.01)

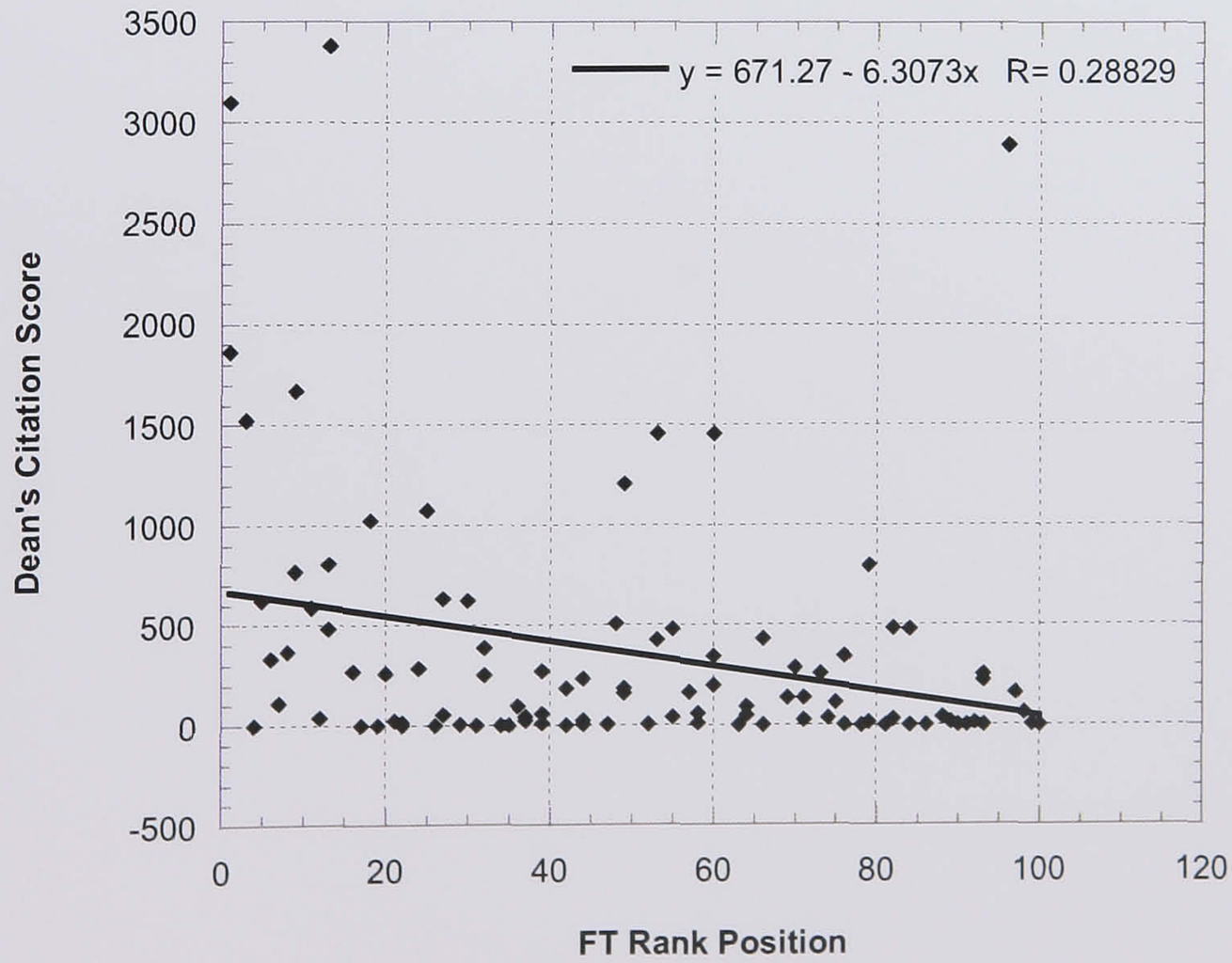


Figure 4.3
The Relationship After Excluding Outliers
(Three deans with citations over 2500)
(p<0.001)

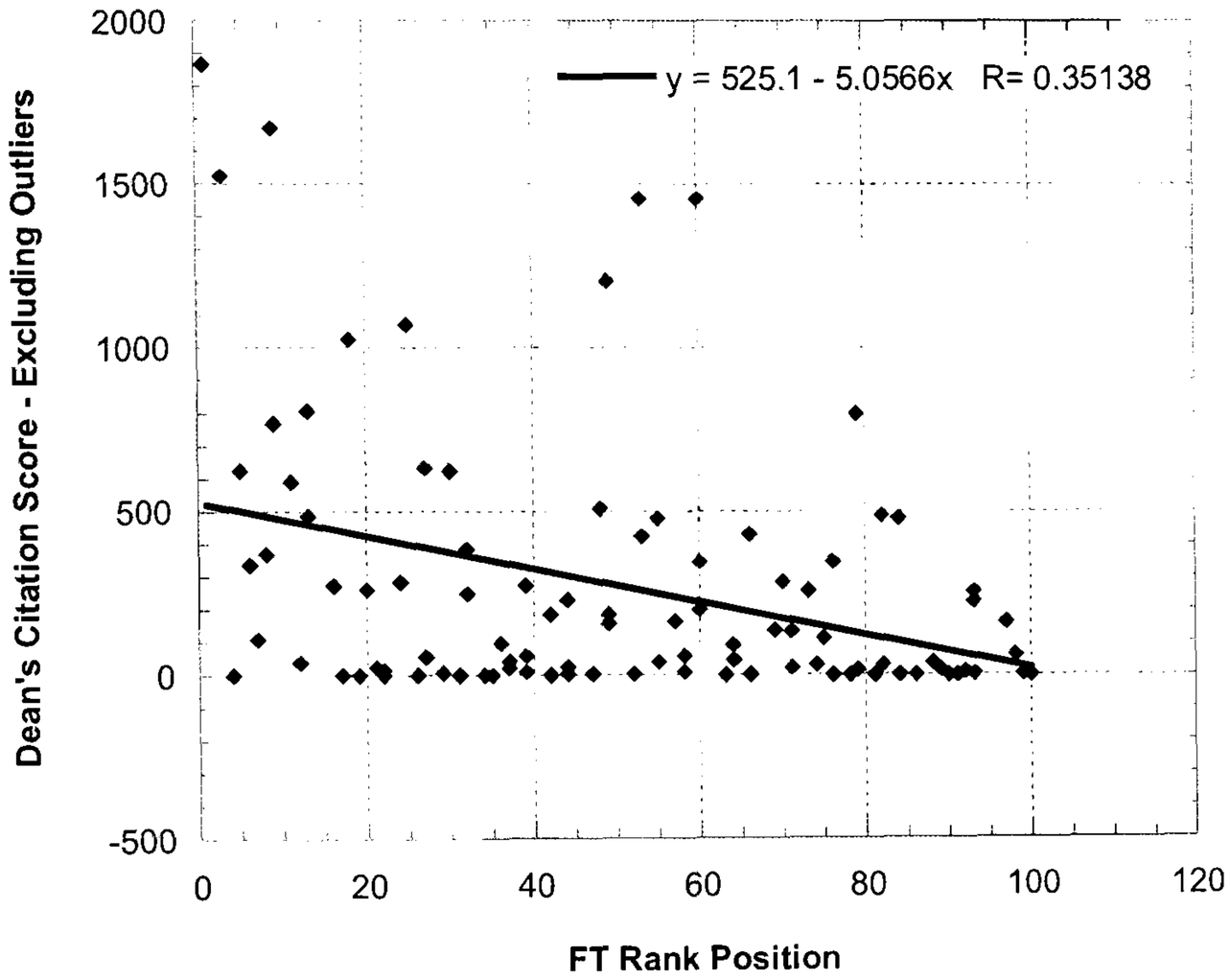


Figure 4.4
The Relationship on a Sub-Sample
of United States Deans
(p<0.001)

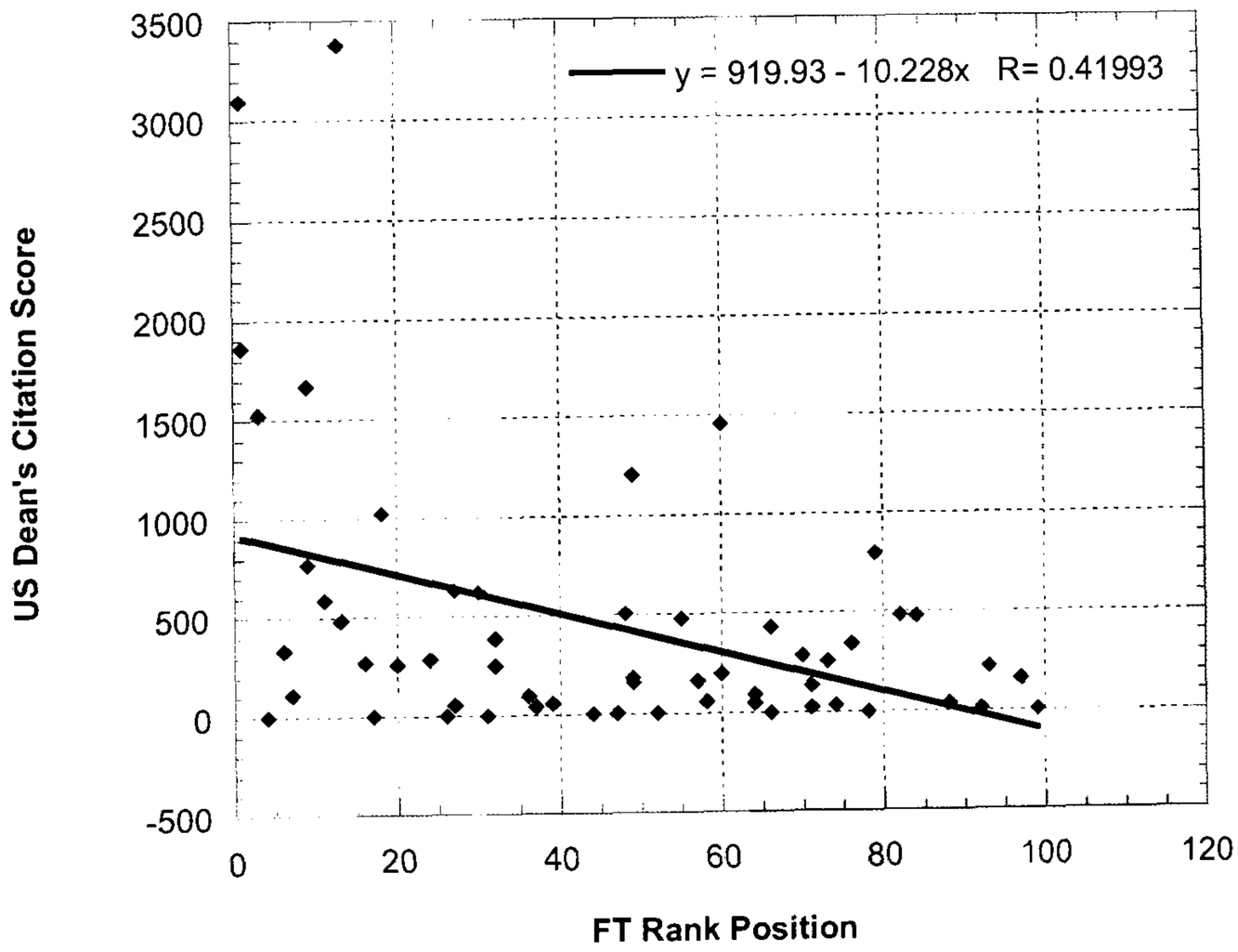
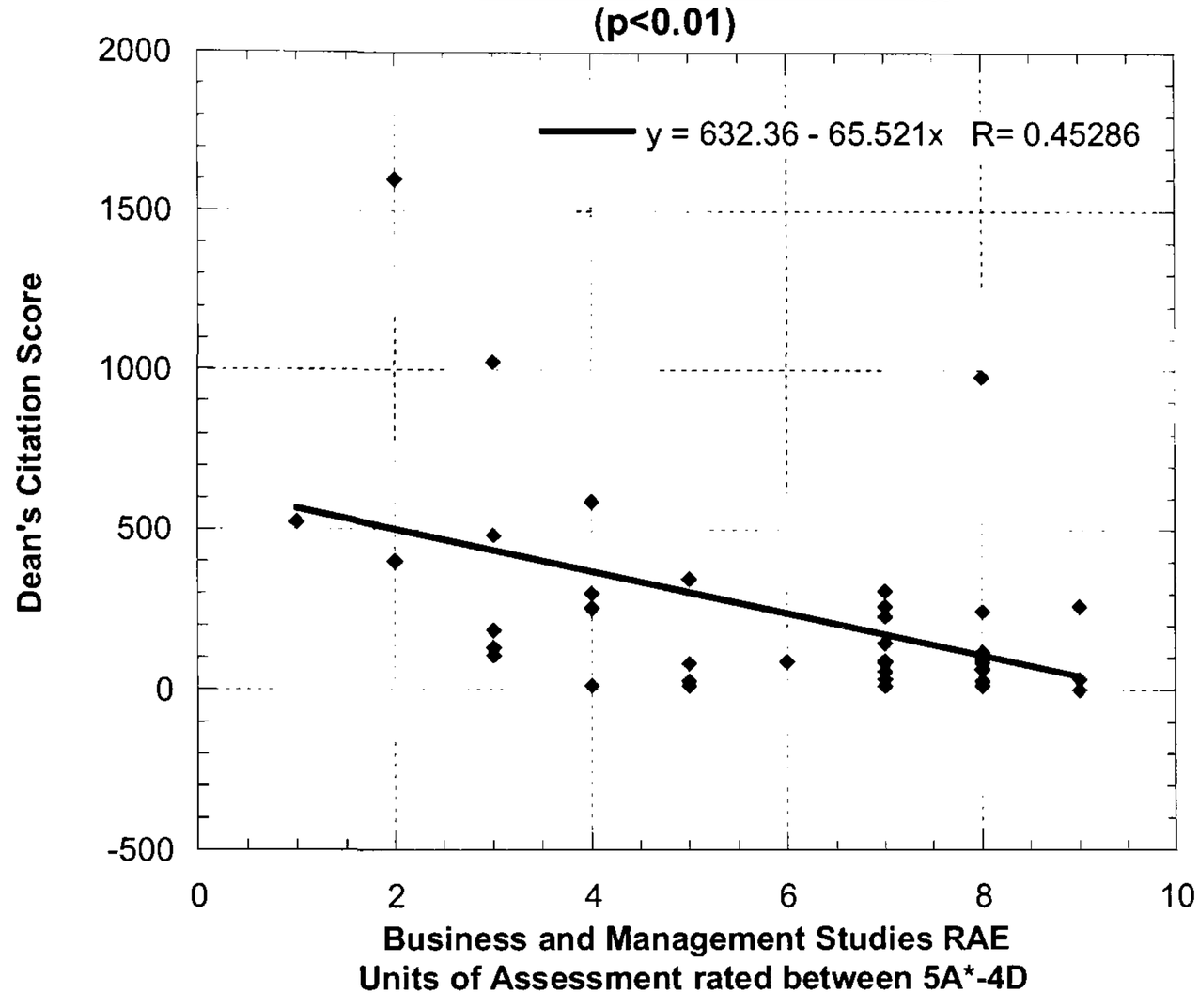


Figure 4.5
The Relationship in a Different Data Set: Deans of UK Business and Management Schools in 2001 Research Assessment Exercise
(p<0.01)



Chapter Five

Experts Leading Experts: A Longitudinal Study of Leadership and University Performance

Introduction

This chapter adopts a longitudinal method to develop further the hypothesis that better scholars may make better university presidents. It uses multiple regression analysis, with university performance as the dependent variable, and the lifetime citations of presidents as the key independent variable. Control variables for university income, presidential age and discipline are also included. These are incorporated to check the robustness of the correlations between university performance and a leader's cites. Data from the UK are used because of the unique method of assessment that has been available in that country for a number of years – the Research Assessment Exercise (RAE) – which is outlined below.

This study uses panel data comprising 55 UK research universities observed three times – 1992, 1996 and 2001. The lifetime citations of 165 UK university presidents have been hand-counted and normalized for discipline.

The Sample of Institutions

There are 55 UK universities in the data set[18] -- the full list is in Table 5.8. The institutions selected make up the oldest and most established research universities in the UK. They are often referred to as the 'old' universities, those that existed before 1992, a period that marked major expansion in the number of UK higher education institutions. This group have consistently generated the majority of academic research and they continue to receive the bulk of UK research income (Higher Education Statistics Agency 2006).

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[18] Aston is not included in this sample because of the small number of departments it submitted to the three RAEs over the period 1992-2001.

It was decided, on balance, that inclusion of new universities (those established in 1992 from polytechnics) would not be appropriate. This is because in 1992, the start date in this study, polytechnics had only just become new universities; also, even today despite enlargement of the sector, old universities still continue to dominate the RAE.

Each university in the 55 sample differs in its total revenue, age and geographic location. Using 2001 figures, the revenue of the sample institutions ranges from £65 million ($120 million) at the lowest end, up to £450 million ($840 million) for Oxford and Cambridge. The mean revenue, however, is £160 million ($300 million) and the median is £120 million ($220). There are three loose categories of university in this group. The first are the universities that were established before the 19th Century including Cambridge, Oxford and St Andrews, among others. The second category are the 'red brick' or civic universities that were established in the 19th and 20th centuries and are all located in cities, for example Bristol, Liverpool and Manchester. Finally, there are a recent group of so called 'plate glass' universities, that were established in the 1960's and these include Essex, Warwick and York.

Age, size, wealth and reputation are all major contributing factors to the long term success of any university. But it is important to mention that success over the last 40 years among UK research universities has not been confined to one particular group. There has been movement up and down in RAE performance and also in various league tables (see for example league tables in The Guardian newspaper, Times Higher Education Supplement, The Independent, among others). In this study, that spans nine years, the data show that improvement in performance is not confined to the largest or the oldest institutions. Using a measure that identifies universities that have increased the number of top-ranked departments over three RAE's (outlined below), the top 10% of movers up include one 1960's university and four red brick or civic universities.

One is located in Wales, two in the north of England, one in the west of England and one in the south.

The Leaders

The sample includes 165 British university presidents[19]. They have led the 55 universities over, approximately, a twenty year period. It is the presidents in place in 1992 and 1996 that appear most in the statistical analysis. Biographical information has come from 'Who's Who', the Association of Commonwealth Universities, and from individuals' biographies. Bibliometric data on the presidents was collected in October and November 2005.

The focus in this chapter is on presidents' lifetime citations that are normalized for discipline into a P-score and used as a proxy measure of each individual leader's past research productivity (as outlined in Chapter 2). Even though it is not directly relevant to the analysis, a description of the presidential data is still interesting, especially if we separate the sample into three loosely consecutive time periods. This allows for a comparison between those leading the 55 research universities in the 1980's, 1990's and early 2000s approximately (see Table 5.1).

Immediately noticeable in Table 5.1 is the small number of women presidents. Of the total 165 UK leaders, over the three time periods, only 7 are female. They include one woman each in the 1980's and 1990's and 5 among the most recent cohort. This implies that women are increasing in numbers as leaders of the UK's top universities, albeit it explains only 9% of the current 55 presidents. As outlined in Chapter 3, in 2004 18% of the top 50 research universities in the US were led by women.

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[19] President is used here to denote the executive leader of a university. The term is used to include vice chancellor, principal, and director, among others.

Apart from sex differences, the most striking feature of the three cohorts represented in Table 5.1 is in their relative similarity. For example, the mean age of accession to president in the first two decades -- 1980's and 1990's -- is 52 years. This age rises by a year for the 2000 cohort. In the 1960s the average age of president was also 52 (Bargh et al. 2000). Average age of accession to university leader has been rising since the turn of the century. In the 1900s, early 40s was a common age of president. By the 1950s the average age of a starting president rose to 48 years, and it appears to be continuing to rise slowly (Cohen & March 1974, Bargh et al. 2000). This, no doubt, partially reflects extended life expectancy. Length of tenure, on the other hand, is marginally shortening. The average tenure of US university presidents in the first seventy years of the nineteenth century was 10 years (Cohen & March 1974). For presidents in this UK cohort the mean length of tenure in the 1980's was also 10 years. By the 1990's, the average time in office started to drop to 8 years. With many contracts now renewable after 5 years, it is possible that the tenure of incumbent presidents might decline further.

Where there have been changes over the three decades is in the disciplinary background of UK presidents. The 1980's were dominated by scientists who made up 75% of the cohort. Of the scientists the largest group at 64% was, overwhelmingly, engineers. In the 1980's those with a social science back-ground numbered only 7 of the 55 with even fewer, 5, from the humanities. In the 1990's scientists started to marginally reduce in numbers to 50% of all presidents, and, of the most recent cohort 43% are scientists. Social scientists as a disciplinary group have increased their presence at the top of universities, and to a lesser extent so have those from the humanities.

Relevant to this study is the number of non-academics who run research universities. Of the 165 presidents, only 8 are non-academics. Of these,

6 are civil servants; one came from a research and development background in industry and the other from a professional service firm. Glasgow University is the only institution to have appointed two civil servants out of its last three leaders.

Finally, 8 presidents appear twice in this data set. In other words, they have run two universities in the sample between the 1980's and 2005. This group could be described as 'career' presidents who may have dropped out of research at an earlier stage in their academic career to pursue administration. This is confirmed when we look at the mean citation score of the 'career' presidents when compared to the overall citation norm of the group. The former have half the average lifetime citations of the sample as a whole. The P-score mean for career presidents is 2.4, and the median is 1.7, whereas the group mean is 5.8 and the median 5.1. Also, the average age that a 'career' president becomes leader is 48, four years earlier than the group mean.

Dependent Variable: University Performance

There are several ways to measure the long-term performance of a university. One of the most common, although possibly the least scientific, is to use league tables, which have become ubiquitous. The main problem with rankings is their lack of consistency in assessment methodologies. They also exclude factors such as an institution's history, reputation and wealth. Most league tables are media generated, produced by commercial organisations designed to make money by selling their publications. To create a story, the methodology is changed, often annually, which ensures that institutions at the top rotate (Lombardi et al. 2002).

The UK has had a system for appraising research universities since 1986, one that takes place every four to five years. The Research

Assessment Exercise (RAE) was designed to help inform funding bodies' decisions about how to distribute public money for research. Selectivity is focused on quality in that institutions that conduct the best research receive a larger proportion of the available grant. Based on a system of peer review, the RAE provides quality ratings for research across all disciplines. Panels use a standard scale to award a rating for each submission. The ratings have changed over the different assessment exercises, but generally they range from 1 to 5*. Scores are assigned to units of assessment (equivalent to academic departments broadly speaking) depending on how much of the work is judged to reach national or international levels of excellence[20]. Submissions are then allocated a letter A-E that signifies the number of faculty in a given unit that have been submitted for review.

The RAE is the measure of university performance used in this chapter. It was felt to be particularly appropriate because of the emphasis it places on the output of academic research, which is a core business function of research universities, the other being teaching. It is important here to mention this second core function and how it might relate to the thesis. The quality of teaching is not being measured; however, it can be argued that there is a relationship between a university's RAE success and the standard of its instruction. In the UK a separate measure was established by government to assess teaching in all universities – Teaching Quality Assessment (TQA). In this assessment process, scores are assigned to each university department based on the strength of their teaching. TQA scores have been shown to correlate highly with RAE scores (Shattock 2003). In other words, those institutions that perform best in RAE tend to obtain the highest TQA scores also.

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[20] Information about RAE available from www.hero.ac.uk

Measure of Performance

University improvement is measured here across three Research Assessment Exercises -- 1992, 1996 and 2001 – and is used to assess how much each university has improved or declined in the number of top departments across these periods. The focus here is on improvement in those departments that achieved the highest three scores in the RAE of 5A*, 5B* and 5A[21]. These grades are synonymous with research considered, by peer-review, to be of international excellence. These scores have been selected as measures of success in this study because obtaining a top grade is a reflection of overall departmental quality when compared to, say, a score of 5C which means that a number of faculty have been omitted from assessment. Thus, it is only a part-measure of a department's quality.

Understanding the spread of grades across the RAE is helpful. In 1992 the 55 universities in this sample submitted a total of 1799 departments. Of these 322, or 18%, obtained a top score in the fives. In the 1996 RAE the same group of universities submitted 1761 units of assessment. In this year, of the 1761 submissions, 525, or 30%, scored somewhere in the fives between grades 5*A and 5E. Of the 525 grade fives awarded in 1996, 320 received scores in the three top five grades. Thus top fives accounted for 18% of the total departments submitted in 1996, whereas a third of all submissions received a grade somewhere in the fives. In 2001, the number of fives awarded rose even higher. In this period the sample institutions submitted only 1676 units of assessment to the RAE. Of these 921, or 55% of the total submissions, scored in the fives, and 528, or 32% of the total received a top five grade. Therefore, with so many submissions scoring a five grade in 1996 and 2001, it was felt necessary to lift the threshold of performance to the top three grades awarded.

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[21] In RAE 1992 the three top scores were 5A, 5B and 5C.

This decision can be justified because departments that achieve a top five grade are submitting all or most of their faculty for assessment rather than merely a portion of them. Also attainment of the top scores demonstrates that academics are deemed to be of international excellence.

University performance is, then, measured by comparing the growth in the number of excellent departments -- those that received a score among the top three grades in RAEs. These figures are generated both for growth in the *level* of units and also as growth in the *changes over time* for each of the sample institutions. For further information, results for the 55 sample universities on the growth in all grade five submissions, over the three RAEs, is also supplied. The findings are in Table 5.9 (A, B & C).

The question that the research is trying to answer is: have the mover universities moved in part because their leaders were better scholars? To understand whether university performance in the RAE can be explained partially by the leader-characteristic of scholarship, the study correlates a president's lifetime citations, or P-score, with the later movement, up or down, of the number of excellent departments in his or her institution. It also controls for institutional revenue, age and the scholarly discipline of presidents.

Independent Variable: Presidents' Lifetime Citations

As discussed in Chapter 2, citations are references to authors in other academic papers as acknowledgement of their contribution to a specific research area. They are used in this chapter to signify the scholarly success of each president. Bibliometric information has come from ISI Web of Science.

In this chapter, each university president is assigned a normalized citation score, which reflects both the differences across disciplines and their personal citation levels. The process used to establish the *'P-score'* -- *president's individual lifetime citation score normalized for discipline* – uses the same methodology outlined in Chapter 2.

Control Variables: Organizational Revenue, Age and Discipline of President

Three control variables have been included in the regression analysis: organizational income, the president's age, and the academic discipline of each president. All are measured across different time periods.

University revenue has been included for years 1992/3 and 1996/7 (figures supplied by the Higher Education Statistics Agency in the UK). It is important to note that the income variable existed only for 47 of the 55 universities. This is because no data were available to the author for the 8 University of London colleges[22] in 1992 when the revenue figures for individual colleges were aggregated into one 'University of London' sum.

The income figures include government funded grants, tuition fees and education grants and contracts, research grants & contracts, endowment & investment income, miscellaneous income and income from services rendered.

The age variable has been included by calculating the age of an incumbent president in 1992 and 1996. The academic discipline of a president is defined by creating two fields, the 'sciences' that are coded 0, and the 'social sciences and humanities' that are coded 1.

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[22] The 8 colleges of the University of London include Imperial, London School of Economics, University College, Birkbeck, Goldsmiths, Kings, Queen Mary and Westfield College and Royal Holloway.

Results

Table 5.2 gives means and standard deviations for P-scores and the performance variable -- the number of departments that scored a top-five grade in Research Assessment Exercises 1992, 1996 and 2001.

In looking at the presidents' P-scores, as mentioned earlier, what is again noticeable is the rise in mean P-score to 7.13 in the year 2001. This is due to an outlier effect in that one leader (Anthony Giddens, Director of London School of Economics from 1997 to 2004) has a large number of lifetime citations. As noted in the table, if the outlier is removed there is consistency in P-scores among presidents across the three time periods. The highly cited LSE president in 2001 does not influence the chapter's results. The key correlations are not affected by this outlier because the calculations in the study allow for lags. Hence, only leaders' P-scores in 1992 and 1996 are used. The mean P-score of leaders in 1992 is 5.15 and the mean P-score of leaders in 1996 is 4.62.

Turning to the performance variables, as reported above, there is a rise in the number of submissions receiving top scores between RAE 1992 and 2001. The rise is particularly noticeable in the last time-period of 1996 to 2001 where the mean increases approximately a half from 6.13 to 9.6.

Initial results can be found in the simple cross-sectional bar diagram in Figure 5.1. The focus here is on the leaders of those universities that made the greatest gains, and the least gains, in the number of top-five departments between RAE 1992 and 2001. The president's P-score figures represent the means in P-score between 1992 and 1996 allowing for a lag.

As can be seen, the universities that advanced the most during this period -- increasing their number of excellent departments -- were

disproportionately led by presidents with higher lifetime citations. The mean P-score of leaders running the top five mover-universities is 13.6 and the mean P-score of those heading the top 10 mover-universities is 9.6. However, of the universities that accumulated the least top-fives across the nine year period -- indeed some actually reduced their number -- the P-score of leaders for both the lowest 5 and 10 universities is 3.1. Therefore, presidents leading the top 10 mover-institutions have three times the P-scores, and those leading the top 5 mover-institutions have over four times the lifetime citations of those who led the universities that performed least well. These preliminary findings suggest that the research history of a president may affect the future performance of a university in the RAE.

Table's 5.3 through 5.7 report regression equations. These attempt to establish more carefully whether a statistically significant relationship exists between organizational performance, the dependent variable, and president's P-score, among other independent variables. In the following tables, the effect of the independent variables is measured by the coefficients, and the level of significance is given by the t-statistic. Results are presented for three time periods. The first is 1992 to 1996, followed by 1996 to 2001 and finally the full 9 years, 1992 to 2001. Given the importance of lags, the results incorporating two research exercises that span just under a decade, would seem to be the most robust.

Table 5.3 gives results for the *level* of excellent departments, or top-fives, gained in 1996 in the RAE, and then reports the effects of the independent variables in 1992.

As can be seen, the P-score of a president in 1992 is statistically significantly related to the number of top-five departments in 1996. The coefficient is 0.30 (t-statistic = 2.29) which is significantly different from zero at the 5% level. Table 5.3 also shows that organizational income is

statistically significant at the 1% level. The coefficient is 0.10 (t-statistic = 6.27). But age and discipline of president are not here statistically significant.

Table 5.4 gives results for the number of top-five departments in the 2001 RAE and reports the effects of the independent variables in 1996, again allowing for a lag of five years. In 2001 the P-score coefficient is 0.53 (t-statistic = 3.04) which is statistically significant at the 1% level. Again, the finance variable correlates with organizational performance. The coefficient is 0.09 (t-statistic = 7.25). However, there is no statistically significant relationship with either age of leader or their academic discipline. The size of the coefficient on P-score is somewhat mediated by adding the extra variables (comparing column 1 to column 4 in Table 5.4).

The equation in Table 5.3 illustrates that one extra point on a presidential P-score raises the number of top-five or excellent departments by 0.3. Table 5.4 shows that in 2001 the number of top-five departments is increased by 0.53; in other words, a hypothetical 10 point move on a presidential P-score in 1996 is estimated to generate five excellent departments in 2001. These are, of course, associations rather than clear cause and effect.

Although they use lags, the results so far are fundamentally cross-sectional. Now we turn to longitudinal analysis.

Table 5.5 gives regression equations in which the dependent variable is the *change* in the number of top-five, or excellent, departments, in the Research Assessment Exercise between 1992 and 1996. As can be seen, the association between P-score in 1992 and the later performance in 1996 is statistically significant at the 1% level. The coefficient is 0.13 (t-statistic = 3.43). University income does not now, in columns 2-4 of

Table 5.5, have a significant effect on the changes over time in the number of top-five departments, and again there is no well-determined effect from the age or discipline of a leader.

Table 5.6 shows a slightly different pattern. In 2001 the number of top-fives is statistically unaffected by presidential P-score five years earlier in 1996. Although the coefficients on P-score across the four columns are not significantly different from zero, they remain positive. Again, there is no significant effect from income nor the age or discipline of a leader.

A statistically significant relationship between performance and leaders' lifetime citations is reinstated again in Table 5.7 when a longer perspective is adopted. The presidential P-scores in 1992 are correlated with the number of excellent departments obtained nine years later in the 2001 RAE. The coefficient is 0.21 (t-statistic 3.13). Statistical significance is established at the 1% level. Finance, age and discipline are not correlated with university performance. In columns 2-4 of Table 5.7, their inclusion in the regression equation leaves the coefficient on P-score approximately unaffected.

A factor that may affect the ease with which an institution can change is the initial strength or weakness of that university. For example, these regression equations may, in a sense, favour an institution that has further to move, because it has very few top departments, when compared to one that has already demonstrated success by achieving many top grades. Could this be a problem?

A test for this is to include a variable controlling for an institution's original position[23]. This check was done by entering the number of top-five grades that an institution had in 1992 into a regression equation where the dependent variable is the change in top departments from 1992 to

[23] Thanks to Ronald Ehrenberg for this suggestion.

2001. When this is done, the results reveal that there is no difference in the statistical significance of presidential P-scores, or in the other independent variables of income, age and discipline (table not reported). Therefore, institutions that improve the most are not doing so merely because they had the furthest scope to change.

The results presented in Tables 5.3 through 5.7 appear to show that a president's lifetime citations, or past success as a scholar, are significantly correlated with the future number of top-five grades that a university attains in the RAE. Conversely, university revenue does not affect performance. Using a measure that follows the growth in departments rated excellent may be a particularly appropriate gauge of RAE performance. Achieving the very top grades is a challenging task because excellence must be reached across all faculty in a given unit of assessment. It is the proportion of people entered that is important[24].

The results presented in this chapter illustrate the apparent relevance of presidents' P-scores when explaining universities' performance in the UK Research Assessment Exercise. In other words, there seems to be some evidence consistent with a statistical, and perhaps even causal, relationship between the past level of scholarship attained by a president and the future performance of their university.

A Further Check for Reverse Causality

Care has to be taken to try to check for reverse causality. This is done earlier in the chapter by introducing a series of lags. But another test can be applied. In the style of Granger causality (Granger & Newbold 1974), when the leaders' P-scores in 2001 are regressed on universities'

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[24] Nevertheless, it is still interesting to look at how a university performs in the RAE in the next tier -- across all five grades from A5* through 5E. These results plus analysis are in Table 4.9 (A, B & C).

RAE performance in 1992, there is no statistically significant relationship. In an equation of this type where the independent variable is the number of top-five, or excellent, departments the coefficient is 0.035 (t = 0.80).

Concluding Comments

Using longitudinal data, this chapter explores whether the characteristics of a leader in position today can tell us about the likely future performance of their organization. The findings seem to offer some of the first evidence that there may be a relationship between the research quality of a leader and later organizational outcomes.

The study's hypothesis is tested by using multiple regression analysis where university performance in the UK's Research Assessment Exercise (RAE) is the dependent variable and the lifetime citations of presidents -- normalized for discipline -- is the key independent variable. Control variables for university income, presidential age and discipline are also used. The focus is on changes in university performance over a nine-year period and three assessment exercises. The data set covers a panel of 55 universities and 165 university presidents. Statistical evidence consistent with the hypothesis is provided.

Table 5.1

Description of the Data

Means

	1980's	1990's	2000-2005
Number of male leaders	54	54	50
Number of female leaders	1	1	5
Age of accession to leader	52 years	52 years	53 years
Leader's lifetime citations normalized into a P-score	4.59	7.80*	5.12
Length of leader's tenure	10	8	N/A
Leaders who were scientists	41	28	24
Leaders - social scientists	7	15	17
Leaders - humanities	5	10	10
Leaders - non-academics	2	2	4
# Universities	n = 55	n = 55	n = 55

*One leader has exceptionally high citations. When we exclude this observation the P-score mean is 5.06

Table 5.2

Descriptive Statistics: Data over Three Research Assessment Exercises

Means
(& standard deviations)

Variables	1992	1996	2001
Leader's lifetime citations normalized into a P-score	5.15 (7.47)	4.62 (5.94)	7.13* (21.56)
Number of top-five departments	5.82 (6.82)	6.13 (7.43)	9.6 (8.13)
# Universities	n = 55	n = 55	n = 55

*One leader has exceptionally high citations. When we exclude this observation the P-score norm is 4.38, standard deviation is 6.92.

FIGURE 5.1
Universities with the Greatest and Smallest Improvement in the Number of Top-Five Departments Between RAE 1992-2001

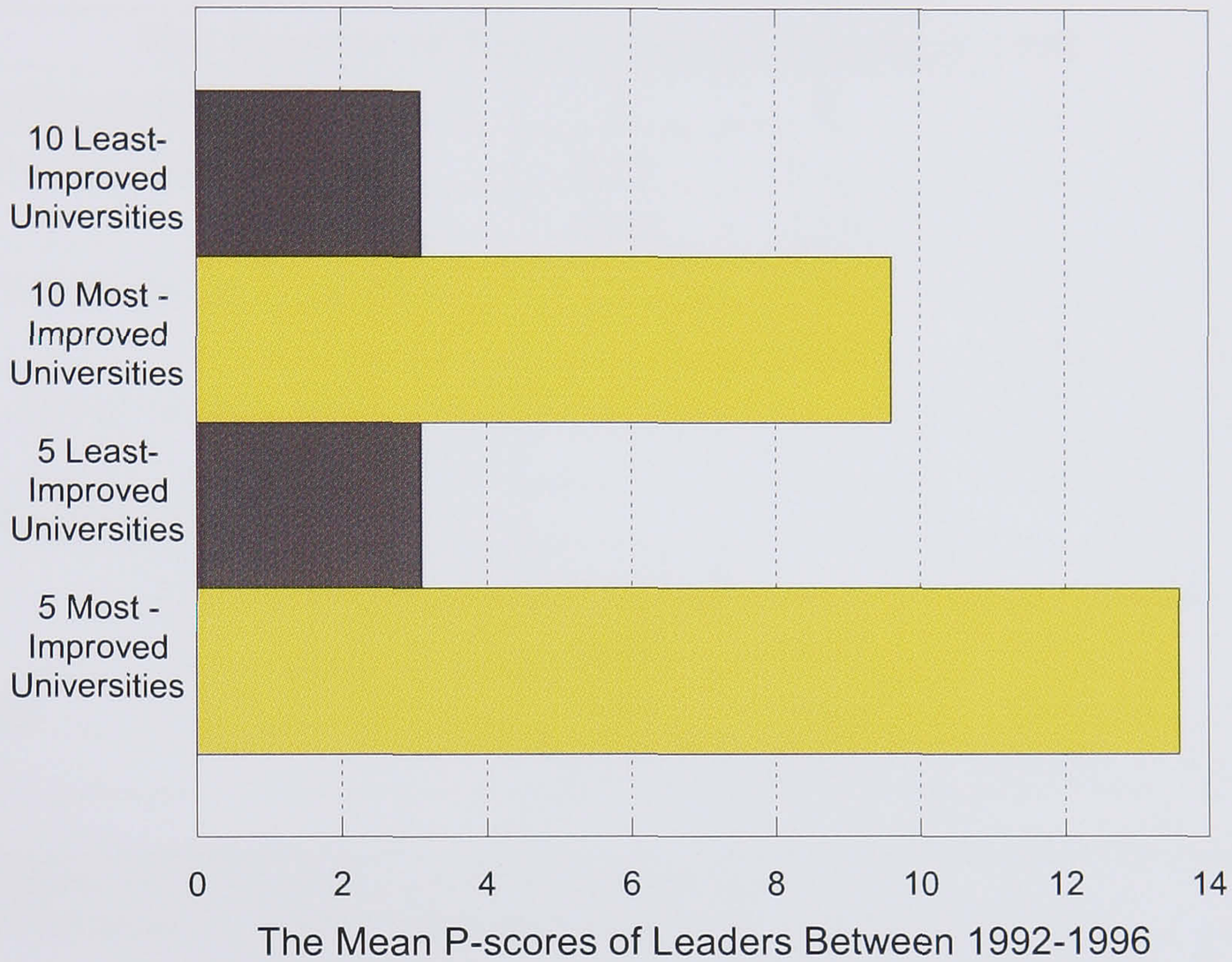

Table 5.3
Regression Equations where the Dependent Variable is the Number of Top Departments in the UK Research Assessment Exercise in 1996

The Number of Top-Five Departments in 1996				
Independent Variables	**1**	**2**	**3**	**4**
P-score of leader in 1992	0.30*	0.21*	0.20*	0.20*
	(2.29)	(2.05)	(1.98)	(1.96)
University income in 1992/93		0.10**	0.11**	0.11**
		(6.27)	(6.56)	(6.28)
Age of leader in 1992			0.25	0.26
			(1.58)	(1.53)
Discipline of leader in 1992[1]				0.30
				(0.16)
R^2	0.09	0.54	0.57	0.57
Constant	4.58	-4.55	-19.05	-19.57
	(3.87**)	(-.71**)	(-2.05*)	(-1.97*)
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities **p<0.01 *p<0.05

Table 5.4
Regression Equations where the Dependent Variable is the Number of Top Departments in the UK Research Assessment Exercise in 2001

The Number of Top-Five Departments in 2001				
Independent Variables	**1**	**2**	**3**	**4**
P-score of leader in 1996	0.53**	0.33**	0.33**	0.33**
	(3.04)	(2.58)	(2.54)	(2.49)
University income in 1996/97		0.09**	0.09**	0.09**
		(7.28)	(7.06)	(6.87)
Age of leader in 1996			0.04	0.04
			(0.21)	(0.21)
Discipline of leader in 1996[1]				0.11
				(0.07)
R^2	0.15	0.63	0.62	0.62
Constant	7.17	-3.08	-5.38	-5.61
	(5.53**)	(-1.84)	(-0.49)	(0.48)
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities **p<0.01 *p<0.05

Table 5.5
Regression Equations where the Dependent Variable is the Change in the Number of Top-Five Departments Between 1992 and 1996 in the UK Research Assessment Exercises

The Change in Top-Five Departments 1992-1996				
Independent Variables	**1**	**2**	**3**	**4**
P-score of leader in 1992	0.13**	0.13**	0.12**	0.12**
	(3.43)	(3.07)	(2.93)	(2.90)
University income in 1992/93		0.00	0.00	0.00
		(0.55)	(0.64)	(0.65)
Age of leader in 1992			0.02	0.02
			(0.36)	(0.29)
Discipline of leader in 1992[1]				-0.11
				(-0.15)
R^2	0.18	0.20	0.20	0.20
Constant	-0.37	-0.61	-2.01	-1.81
	(-1.09)	(-0.90)	(-0.52)	(-0.43)
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities **p<0.01 *p<0.05

Table 5.6
Regression Equations where the Dependent Variable is the Change in the Number of Top-Five Departments Between 1996 and 2001 in the UK Research Assessment Exercises

The Change in Top-Five Departments 1996-2001				
Independent Variables	**1**	**2**	**3**	**4**
P-score of leader in 1996	0.08	0.06	0.05	0.04
	(1.03)	(0.64)	(0.53)	(0.40)
University income in 1996/97		0.00	0.00	0.00
		(0.97)	(0.86)	(0.59)
Age of leader in 1996			-0.00	0.06
			(-0.02)	(0.43)
Discipline of leader in 1996[1]				1.97
				(1.64)
R^2	0.02	0.04	0.03	0.09
Constant	3.08	2.18	2.53	-1.44
	(5.07**)	(1.80)	(0.32)	(0.18)
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities **p<0.01 *p<0.05

Table 5.7

Regression Equations where the Dependent Variable is the Change in the Number of Top-Five Departments Between 1992 and 2001 in the UK Research Assessment Exercises

The Change in Top-Five Departments 1992-2001				
Independent Variables	**1**	**2**	**3**	**4**
P-score of leader in 1992	0.21**	0.19**	0.20**	0.20**
	(3.13)	(2.59)	(2.64)	(2.63)
University income in 1992/93		0.02	0.02	0.02
		(1.48)	(1.27)	(1.35)
Age of leader in 1992			-0.00	-0.03
			(-0.07)	(-0.24)
Discipline of leader in 1992[1]				-0.78
				(-0.58)
R^2	0.16	0.20	0.20	0.21
Constant	2.70	1.33	1.85	3.22
	(4.46**)	(1.10)	(0.27)	(0.43)
n=55				

Coefficients are shown with t-statistics in parentheses

(1) 0 = Sciences, 1 = Social Sciences & Humanities **p<0.01 *p<0.05

Table 5.8

Universities in the sample*

1. Birkbeck College, London
2. Brunel University
3. City University
4. Goldsmiths' College, London
5. Herriot-Watt University
6. Imperial College, London
7. King's College, London
8. London School of Economics
9. Open University
10. Queen Mary and Westfield College, London
11. Queen's University, Belfast
12. Royal Holloway, London
13. UMIST
14. University College London
15. University of Wales, Bangor
16. University of Wales, Swansea
17. University of Wales, Aberystwyth
18. University of Aberdeen
19. University of Bath
20. University of Birmingham
21. University of Bradford
22. University of Bristol
23. University of Cambridge
24. University of Dundee
25. University of Durham
26. University Of East Anglia
27. University of Edinburgh
28. University of Essex
29. University of Exeter
30. University of Glasgow
31. University of Hull
32. University of Keele
33. University of Kent at Canterbury
34. University of Lancaster
35. University of Leeds
36. University of Leicester
37. University of Liverpool
38. Loughborough University
39. University of Manchester
40. University of Newcastle
41. University of Nottingham
42. University of Oxford
43. University of Reading

44. University of Salford
45. University of Sheffield
46. University of Southampton
47. St Andrews University
48. University of Stirling
49. University of Strathclyde
50. University of Surrey
51. University of Sussex
52. University of Ulster
53. University of Cardiff
54. University of Warwick
55. University of York

* Aston University was excluded from the sample because their RAE submissions were few in number, making comparisons in performance difficult and open to inaccuracies.

Table 5.9 (A, B & C)
Re-Doing the Testing with a Different Performance Measure

(A) Regression Equations where the Dependent Variable is the Number of Departments Graded 5A*- 5E in the UK Research Assessment Exercise

(A.1) The Number of Grade Five Departments in 1996				
Independent Variables	**1**	**2**	**3**	**4**
P-score of leader in 1992	0.34*	0.22*	0.21*	0.21*
	(2.22)	(2.21)	(2.07)	(2.07)
University income in 1992/93		0.13**	0.14**	0.14**
		(8.37)	(8.36)	(8.21)
Age of leader in 1992			0.12	0.09
			(0.74)	(0.52)
Discipline of leader in 1992[1]				-1.05
				(-0.58)
R^2	0.09	0.66	0.67	0.68
Constant	7.82**	-4.17**	-11.00	-9.17
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities
**p<0.01 *p<0.05

(A.2) The Number of Grade Five Departments in 2001				
	1	**2**	**3**	**4**
P-score of leader in 1996	0.71**	0.40**	0.42**	0.41**
	(3.02)	(3.38)	(3.43)	(3.34)
University income in 1996/97		0.14**	0.14**	0.14**
		(12.18)	(11.972)	(11.61)
Age of leader in 1996			0.12	0.15
			(0.69)	(0.80)
Discipline of leader in 1996[1]				0.86
				(0.54)
R^2	0.15	0.82	0.81	0.82
Constant	13.47**	-2.13	-9.24	-10.98
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities
**p<0.01 *p<0.05

(B) Regression Equations where the Dependent Variable is the Change in the Number of Departments Graded 5A*- 5E in the UK Research Assessment Exercise

(B.1) The Changes in Grade 5 Departments Between 1992-1996				
Independent Variables	**1**	**2**	**3**	**4**
P-score of Leader in 1992	0.17**	0.15**	0.14**	0.15**
	(3.30)	(3.06)	(2.96)	(3.08)
University income in 1992/93		0.03**	0.03**	0.04**
		(4.16)	(3.40)	(4.40)
Age of leader in 1992			-0.17	-0.16
			(-1.52)	(-2.05)
Discipline of leader in 1992[1]				-1.57
				(-1.84)
R^2	0.17	0.43	0.46	0.50
Constant	2.80**	-0.13	6.62	9.37*
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities
**p<0.01 *p<0.05

(B.2) The Changes in Grade 5 Departments Between 1996-2001				
	1	**2**	**3**	**4**
P-score of leader in 1996	0.23*	0.14	0.14	0.12
	(2.06)	(1.28)	(1.22)	(1.11)
University income in 1996/97		0.04**	0.04**	0.03**
		(3.45)	(3.28)	(3.03)
Age of leader in 1996			0.08	0.14
			(0.46)	(0.85)
Discipline of leader in 1996[1]				2.11
				(0.15)
R^2	0.74	0.28	0.27	0.31
Constant	6.13**	2.62	-1.47	-5.70
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities
**p<0.01 *p<0.05

(B.3) The Changes in Grade 5 Departments Between 1992-2001				
	1	**2**	**3**	**4**
P-score of leader in 1992	0.26*	0.16	0.16	0.16
	(2.18)	(1.59)	(1.50)	(1.49)
University income in 1992/93		0.09**	0.09**	0.09**
		(5.45)	(5.20)	(5.05)
Age of leader in 1992			-0.11	-0.12
			(-0.69)	(-0.71)
Discipline in 1992[1]				-0.34
				(-0.18)
R^2	0.08	0.46	0.47	0.47
Constant	9.51**	2.32	8.85	9.44
n=55				

Coefficients are shown with t-statistics in parentheses
(1) 0 = Sciences, 1 = Social Sciences & Humanities

**p<0.01 *p<0.05

(C) Analysis of Results where the Dependent Variable is the Change in the Number of Departments Graded 5A*- 5E in the UK Research Assessment Exercise

Table (A) gives results for the level of grade five submissions in 1996 and 2001. It then reports the effects of the independent variables in 1992 and 1996 again allowing for a lag. In 1996 the P-score coefficient is 0.34 (t-statistic = 2.22) which is statistically significant at the 5% level; and in 2001 there is a coefficient of 0.71 (t-statistic = 3.02) significant at the 1% level. University income is significant at the 1% level in 1996 and 2001. There is no significant effect from the age of president or their academic discipline in either time phase. As mentioned above, it is possibly more important to examine the results incorporating a longer lag as these are likely to be more reliable.

When we examine the changes in performance over time, as can be seen in Table B, there is a statistically significant effect from P-score on the changes in the number of grade five departments between 1992 and 1996. The coefficient is 0.17 (t-statistic = 3.30) and the level of statistical significance is 1%. However, when we move to the next time period of 1996-2001 the P-score has a significant effect prior to inclusion of the finance variable only. This is also the case between years 1992-2001, where P-score is significant at the 5% level until income is added into the regression, at which point, P-score is less statistically significant.

The impact of organizational revenue is likely explained by size. In each RAE, half of all fives awarded were top-five grades of 5A*, 5B* & 5A. Grade fives, per se, represented 30% of all submissions in 1996, and by 2001 the figure was up to 55%. To give two examples in the data: in 2001 the University of Manchester submitted 46 of its academic departments into the RAE. Of these, 37, or 80%, received a grade five. Of the 37 grade fives 14, or 30% received a top five score; in the same year the University of Glasgow submitted 48 academic departments into

the RAE. Of these 23, or 48% received a five grade but only 6 departments, or 13%, received a top five rating. It is, therefore, expected that institutional revenue will be more important in Table 6 where the numbers of academic departments are considerably higher although the standards being reached are, on the whole, lower.

As mentioned above, lags are used as the main protection against reverse causality. However, in the style of Granger causality, when we run a regression using, as a dependent variable, performance in all grade five departments in 1992 with presidents P-scores in 2001, there is no statistically significant relationship. The coefficient is 0.035 (t = 0.82).

Chapter Six

In the Words of Leaders

Interview Data

Introduction

"What matters is scholarship not just management.

We should take management for granted"[25]

Statistical data monopolise the findings reported so far. This chapter now turns to qualitative data. Semi-structured interviews have been conducted with 23 leaders[26] in high ranking research universities in the UK and US. A list of interviewees is presented in Table 6.1 and the interview schedule is in Table 6.2.

The qualitative data can be viewed as 'complementary' evidence used to 'elaborate and enhance' the statistical contributions, and also, to 'illustrate' the theoretical interpretations (Greene et al., 1989: 259 in Bryman 2006). Earlier chapters identified patterns using a statistical method that does not study the details of particular individuals. Qualitative data brings us closer to possible explanations, although to fully understand the transfer mechanisms, through which scholars may actually influence strategy processes, would require further detailed case-studies. The interviews, therefore, motivate the theory, and also situate leaders back into the organizational context of the research university.

It is common for leadership studies that combine qualitative and quantitative methodologies to use a cross-sectional design (e.g. Rosener 1990, Kirby et al. 1992, Egri & Herman 2000). Moreover, in this style of research, structured interview data are quantified and statistical tests are then applied (see Bryman 2004). Given the fairly small sample here, simple patterns in

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[25] In correspondence with a former UK vice chancellor who wished to remain anonymous.

[26] As in previous chapters the term 'president' is generally used to denote head of university, vice chancellor (VC), principal, director, among other titles. VC is used when a quote or interview statement refers directly to UK vice chancellors.

the semi-structured interviews collected for this thesis will be observed but the data are presented in qualitative form.

The responses to interviews in this chapter were documented by transcription. The author felt that recording interviews digitally or on tape may be less acceptable to the participants given their status. Interview data were analysed by a process of colour-coding that loosely matched the topics raised in the questions. It is in this form that the data are offered here.

Structure of Chapter

Interview data presented here are separated into three broad themes –

1. **Explaining Why the Correlations Exist**
2. **General Leadership Themes**
3. **Leadership Appointments and Governance**

The raw data are reported under sub-headings within these thematic sections. Most of the interview material collected has been distilled into this chapter. An attempt was made to include every major point raised by a participant.

The first section focuses on the study's hypothesis – namely, that accomplished scholars may be particularly good people to run research universities. Those interviewed as part of this study were asked a number of questions about being a leader, but the final direction of enquiry with all participants (n=23) focused on the thesis research question. This happened at the end of each interview (to avoid skewing responses) when the author reported her statistical results to the interviewees – as in chapters

3 through 5 – and asked each participant: "Why do you think the correlations exist?"

It is the responses to these questions that will provide the first theme of this chapter. Also included at the end of this section are statements from vice chancellors who were interviewed by the popular newspaper published in the UK that serves the higher education sector, the Times Higher Education Supplement. These journalistic interviews are reported because of their relevance to this thesis. However, it is accepted here that the accuracy of this secondary data cannot be fully guaranteed.

The second section turns to the broader issues of leadership. It includes responses to questions about the role of leader, strategy making, power and the top management team, among other areas. These issues are of general interest insofar as they present background material about leaders in research universities.

The third theme is about appointing leaders and its links to university governance and strategy. It raises questions about the criteria and processes used to appoint institutional heads.

With minor exceptions, interviews with leaders in the US took place in 2005, between March and May, and UK interviews took place in 2006, between January and June. A semi-structured interview method was used. UK vice chancellors were asked more questions than their US counterparts because the author's ideas developed as the study progressed. Nevertheless, one particular list of questions was almost always repeated to each set of participants. The interview schedule was altered a little for those who were not university heads, for example, deans. And in the case of John Heilbron

(former vice chancellor, Berkeley) correspondence was of a more informal nature.

Interviews opened with questions about leaders' roles, priorities, powers and strategic input. After these themes were developed (expanded in the UK interviews), the author explained her research to each participant, sought their general reactions to the findings, and asked them why they thought the correlations might exist. It is this information that is reproduced in the first section below.

The interview responses raise a number of important questions and theoretical issues. These will be further discussed in the next chapter (7).

Interview Data

Primary interview material has come from 23 leaders in universities, and also 10 members of a panel created to appoint to the position of vice chancellor in a UK university (see Table 6.1 for a full list, and the interview schedule in Table 6.2.) The latter is akin to a case-study. Interviews were not voice-recorded because of issues of sensitivity around interviewing organizational leaders. Interview material was recorded on paper by the author.

Secondary interview data from university leaders interviewed in the Times Higher Education Supplement are also later discussed. In this sub-section there were statements from 10 UK vice chancellors representing a range of universities. Half of this group are anonymous.

Among the primary data-set of 23 interview participants there were 18 university heads, four of whom were retired. The majority of semi-structured interviews are with vice chancellors in the UK (13); five are with US heads.

In the case of one US president, Shirley Tilghman, President of Princeton, direct quotes have been included that were taken from an interview with her in the 'The Daily Princetonian' (October 24, 2005). President Tilghman was asked to comment on the author's work in Chapter 3 (Goodall 2006). The Princetonian article is available in Appendix 3.

Three interviews were done with deans of business schools, two in the US and one in the UK – although 1 former vice chancellor also previously led two UK business schools. Finally, there were two interviews with former deans of the Faculty of Arts and Sciences at Harvard. (Total n=23).

Of the 18 university heads included, 4 had not come through the traditional academic route. One spent many years in the pharmaceutical industry although he continued his academic research and as a consequence emerges as well-cited in the literature. One president was a civil servant with no PhD, and 2 from engineering backgrounds although one has a PhD and had previously led a university in a different country.

A simple case-study is reported in the third section on 'Leadership, Appointments and Governance'. Here there are interviews with 10 members of a committee created to appoint a vice chancellor. The head-hunter was also interviewed as was the candidate appointed through this process (total n=12 – see Table 6.3). In agreement with the university involved, all participants and the name of the institution are anonymous. The university, which is research focused, is based in the north of England. Although these interviews were conducted for a separate study, some data are used in the thesis. These contributions should be viewed as of limited gererality; indeed they consist of one study. However, they shed some light on the appointment process, raise some apparently interesting issues, and also open the way for future research. The questions are listed in Table 6.3.

For reasons of confidentiality, the names of those interviewed are removed; in other words the statements reported are unattributed. Only the general position of subjects is identified, for example if they are a dean, VC or president, and the nationality is also revealed. Leaders who are not from a traditional academic background are also labelled as such if relevant to the section theme. Finally, it is important to note that all quotes listed under theme headings are from different leaders (i.e. nobody, within a particular theme heading, is quoted twice). The same participant never makes two statements within the same section.

1. Explaining why the Correlations Exist

There were a number of recurring themes from the interviewees when asked: "Why do you think the correlations might exist?" These can be separated into five dominant areas:

a) Credibility
b) Values, Motivation & Knowledge
c) Quality-threshold
d) Selection
e) Non-Academics

Interview responses are categorised under these headings. Inevitably, answers do not precisely separate into these categories. This is particularly true with the first two areas, which are overwhelmingly the most common types of responses given by participants. Hence, interview statements about 'credibility' and 'values, motivation & knowledge' are presented together.

a) Credibility and Values, Motivation & Knowledge

Interviewees' answers that offer explanations for the correlation most commonly fall into these two broad areas of (i) credibility, and (ii) values, motivation & knowledge. Such responses are mentioned by 16 interview subjects. Credibility can perhaps be defined as an external factor insofar as others must assign credibility, whereas values, knowledge and motivation are arguably internal to an individual. It is noticeable that those who raised explanations of credibility and values were all leaders with a traditional academic background. None of the non-academic leaders presented these kinds of arguments.

The statements below are illustrative of these themes.

Former UK VC -

- *"You have to know the game. If not you lack legitimacy. Being a distinguished researcher gives you legitimacy in either a business school or a university. And legitimacy gives you authority as a leader."*

UK VC -

- *"Having a relatively distinguished research history makes a difference to the job of VC for two reasons; you carry more weight and authority with colleagues, and second, you have an understanding of the world of research and all the pressures researchers are under."*

UK VC -

- *"It is important that a leader's value system is not too far from the values of those who are being led."*

UK VC -

- *"It is a combination of value system and research pedigree."*

UK VC -

- *"Because I am an academic I am driven by the academy and the development of ideas and knowledge. It is my business. It is not possible for someone external to the academy to understand this."*

US dean -

- *"You need to engage the hearts and minds of faculty. Being a researcher means you have equal status, offer faculty support, speak the same language, have academic resonance and credibility, and finally, trust; trust is very important to have as a leader."*

UK VC -

- *"When I was in industry, being a researcher there also helped with gaining credibility at many levels, because I had a particular understanding about the products and what was going on in the labs. Credibility is very important."*

UK VC -

- *"Non-researchers do not have an affinity with researchers – they have little understanding of the culture, no credibility and therefore an engagement problem, and, finally, they cannot talk research."*

UK VC -

- *"An academic researcher-leader understands the culture of the place and particularly he understands the incentives. What motivates faculty and how one can get them to do what you want them to do - which is what leaders have to do."*

UK VC -

- *"My own research was 5* quality and I was an expert in my field. It is very important to be a good researcher and to look others in the eye when they say they can't do something or are moaning about having to raise research funding."*

UK VC -

- *"The best president is he or she whose scholarly priorities don't change."*

Former US dean -

- *"An appointing board can signal a sound understanding of the culture of a research university by appointing a recognized scholar with administrative ability to a top leadership position."*

US president -

- *"The best universities tend to have the best faculty – shared values of excellent research and teaching. If the president is a scholar they have a better sense of the culture of the academy and also they are perceived as being better able to create the right climate for academics."*

UK dean -

- *"Gaining respect as a scholar is a big advantage. It also demonstrates that you share scholarly values and have substantial networks. But it is not the only factor. Running an organization needs complementary skills."*

Former US dean -

- *"Being a good scholar means that I can look a Nobel or Pulitzer Prize winner in the eye. It is very important to have been a researcher or to have entered deeply into scholarly enterprise."*

UK VC -

- *"These results are about credibility and confidence."*

b) Quality-threshold

The term 'quality-threshold' refers to interview statements that suggest an important part of the function of university head is to set the institutional standards. Some presidents and VCs also argue that it is easier to put pressure on others to perform to a high standard if you, as leader, have previously done so yourself. Finally, comments in this section also point to a signalling effect of having a scholar as institutional head. Once again, these types of statements came only from those who were themselves from traditional academic backgrounds. Examples of statements that present a quality-threshold perspective include:

US dean -

- *"Leaders are the final arbiters of quality. Therefore it is right to expect the standard bearer to first bear the standard."*

Former UK VC -

- *"How can you exhort others if you haven't done it yourself?"*

UK VC -

- *"My job is to lead, to represent the university internally and externally and set the quality threshold. By quality-threshold I mean articulate*

and decide upon what level of quality the university wants to aspire to. When a quality-threshold is established it sends out a message that no one below the threshold should be accepted into the university; it sets the quality agenda."

US president -

- *"My job involves broad direction setting and imposing standards. In order to impose standards it is easier if you have first met them yourself."*

UK VC -

- *"I feel that as the VC is the one who sets the quality tone for research and the strategy generally, and also is responsible for raising aspirations, it is important that he or she has been a researcher; particularly to raise the research ambition."*

Former UK VC -

- *"I really know about the social sciences; being an expert in this field helps with being a leader. I have mastery of the subject and therefore I can grasp what is going on."*

Statements also refer to the signalling effect that scholars can have. Some chiefs even use their own research activity to motivate others.

US president -

- *"By having an academic at the helm, the university is stating clearly what it values most highly."*

UK VC -

- *"I was told by colleagues at …, 'it is good that people like you are in leadership positions' and by that they meant researchers."*

US president -

- *"Being a researcher sends a signal to the faculty that you, the president, share their scholarly values and general understanding. It also sends an internal signal to colleagues that research success in the institution is important."*

UK VC -

- *"It is important for VCs to be interested in research and to keep a bit of a hand in if possible. That way you get respect and also it sends the right message."*

UK VC -

- *"I continue to do research now both for myself and also the signal that it sends to others. Academics find it hard to complain about combining the pressures of administration and the demands of research when they hear that I am still managing to publish research as VC."*

UK VC -

- *"I was submitted to the last RAE, and it gave me extraordinary weight, that I could fulfil the role of VC and still submit research into the RAE. It sends a very strong message to the community."*

An important point raised by a former university VC suggests that the level of scholarship should be relative to the institution's ambitions.

Former UK VC -

- *"Whether a leader is an outstanding researcher or just respectable is relative. It depends on where an institution is and where it wants to be. A Nobel Prize winner going to lead Brighton University may not be appropriate. It is all relative. A third-tier university wishing to raise its research standing may want a second-tier academic. The leader should represent the aspirations of the institution."*

c) Selection

Other reasons were given why a VC should be a proficient researcher. It was very common for leaders to emphasize the importance of faculty appointments and retention.

US dean -

- *"The most important part of the job of dean is the recruitment and retention of top faculty. Appointing good staff is the key to sustaining the position of a business school or university."*

Former UK VC -

- *"A leader who is an academic helps to mobilize people. People are much more important in academic institutions than conditions. Everything in a university flows from the academic value of faculty. My priority was to ensure that we attracted and retained the best academics... I spent much of my time attracting good people and trying to keep our top people."*

UK VC -

- *"It is my job to think about the profile of the university; what the university wants to look like in 30 years – its people, intellectually and socially. The 'people' bit is the most important."*

Former UK VC -

- *"I have to inspire and motivate people, and to set targets -- to create a supportive environment and crucially to appoint the best people."*

A number of participants also suggested that having eminent scholars in an institution can attract other top scholars.

UK VC -

- *"Good people only ever want to work with good people."*

Former UK VC -

- *"When I contacted top scholars many would ask, 'Who else is in the department?"*

UK VC -

- *"When it comes to making academic appointments I have found that like-appoints-like, so you must have the best faculty on selection committees. Many people who are no longer research-active tend to put themselves forward for committees. But if selection committees become too full of non-researchers, the quality of appointments gets down-graded."*

Some interviewees said that it can be challenging for individuals to hire people who are better than themselves.

US dean -

- *"I have on occasion met faculty who put the institution above their own position and chose to appoint someone better than them. But it is not common. It's a natural human reaction to find it difficult to select someone above you."*

UK VC -

- *"I was recently in an appointment committee where the academic department doing the recruiting thought that they (the department) were better than anyone else did. Three candidates were short-listed. The department picked the opposite order of candidates to the rest of the appointing committee. They put the worst candidate first. I think they did this because they were weak researchers and therefore lacked in confidence. Confidence is infectious."*

US president -

- *"A judicious leader is someone who is capable of hiring people smarter than themselves."*

d) Non-Academics

Explanations proffered by interviewees about why the correlations exist included responses about the consequences of the appointment of non-academics to the role of university leader. There seemed general agreement that the appointment of business people as leaders was unlikely to be successful in research universities. But there was a greater tolerance expressed for those who came from industries where the culture was felt to be more similar -- for example in R&D or professional service firms.

The most common theme from interviewees was that respected scholars ought to be in charge of universities:

UK VC -

- *"A successful international business man should be appointed as CEO into an international business. An editor of the FT will have been a competent journalist. A VC of a university must have been an academic to understand the culture. Universities are profoundly intellectual and can only be led by an academic."*

Former UK VC -

- *"Research universities should have leaders with a solid academic background and a decent publishing record. Leaders from business or politics do not work."*

US president -

- *"Faculty at X would look askance if their presidents were not good academics with a research track record."*

Former US dean -

- *"I am very opposed to appointing business-men. I believe strongly that it is necessary to understand the culture, and also, to believe in the principle of meritocracy."*

Former US president -

- *"Even with appointments the 'experts' don't always give you the whole or exact picture. The president still needs to make decisions, and therefore, he or she needs to fall back upon their own knowledge of having been an academic. If you didn't have academic knowledge how could you make these judgements?"*

Former UK VC -

- *"Business people should not lead academic business schools. It is rarely successful. There are exceptions of course, for example Wharton was once led by a former consultant. Being from a professional service firm meant that he had a better understanding of the culture than someone from another part of the business sector. But he did not get involved in any academic decisions – they were taken by a deputy dean. In my experience, business people are usually terrible teachers and they are weak speakers."*

US dean -

- *"A former dean of the school came from a consulting firm. For the academics to accept him the school had to introduce a new academic post of deputy dean – a system that is now the norm throughout most business schools. He was considered a good dean because he came from a consulting firm where the system was similar to managing and leading faculty -- leading by mutual consent, building consensus within an organization not top down. Also they have a similar promotional structure. But deans from industry are a disaster. I have seen much money burned through top-down attempts to lead faculty… Unfortunately most MBA students want Jack Welch to be dean."*

UK VC -

- *"Most of those who have led universities from the corporate sector are from R&D … although they do still have some adapting to do."*

From a non-academic leader:

UK VC -

- *"Actually management problems in a university are not so different to those in other organizations. Academics aren't so different to other professional people. All are adverse to a top down style of management. I worked in a consultancy for a number of years, but I also feel that in banks it is similar. I feel that I have dealt with similar problems and cultures elsewhere."*

He went on to say that there are advantages also:

- *"A respected researcher is only that in one discipline, and there are often tensions between different disciplines. I feel that I am exempt from all the internal back-biting."*

Another non-academic leader felt somewhat of an outsider, although, he believes he was there to perform a different role to that of his predecessor.

UK VC -

- *"I still feel like an alien… My predecessor united the faculty and university around the RAE. But I was brought in because of my experience of mergers and also in dealing with politicians… I was very surprised to be offered the job"*

A number of participants pointed out that cycles of appointments are common.

UK VC -

- *"Many places seem to have a cycle of appointing a researcher and then a non-researcher. The selection committee that appointed me*

actually wanted a researcher to succeed the previous VC, who was not."

UK VC -

- *"Institutions often fail to take the long view. They oscillate between appointing different types of leaders who push the institution in different directions. I want to avoid this by adapting the direction to create more of a balance without taking away from what has been achieved."*

Two interviewees said that the very best scholars do not make good leaders.

UK VC -

- *"A Nobel Prize winner may not be best and it may be wrong to have them lead as they are better at something else."*

Former US dean -

- *"Having top researchers in departments can cause problems – they can be bad managers or control freaks resisting succession. I have seen it happen."*

VC Interviews in Times Higher Education Supplement

In an issue of the Times Higher Education Supplement (THES) the newspaper asked eleven UK VCs to identify the essential qualities necessary for the job of vice chancellor (August 25 2006). It is important to note that these secondary data were obtained through a newspaper and, therefore, the author cannot verify the accuracy of the material. The

material is being included because of the relevance of responses, from those interviewed, to this thesis's research question.

In the THES interviews with university leaders, half the sample are named and half are anonymous. Responses appear to have come from UK VCs in a cross-section of universities – new and old. Five out of 11 VCs have names attached. They include: Michael Thorne from University of East London; Eric Thomas from Bristol University (also included in the thesis sample); Roger Brown from Southampton Solent University; Kel Fidler from Northumbria University; and finally, Terence Kealey from Buckingham, the only private university in the UK.

These VC statements follow a small debate in the THES about the type of leaders universities should be looking for. A few weeks earlier in the newspaper, a registrar (from University of Exeter) argued that universities should be appointing more non-academics as VCs. This is the theme that most of the VCs interviewed refer to – to lead a university should a VC come from an academic background?

The overwhelming majority of those interviewed appear to support the idea that academics or people with knowledge of education should lead universities. Some of the respondents offer caveats and many expand on the leadership role. Only one anonymous VC does not mention that leaders should be academics. It is interesting to note that unlike the sample of leaders interviewed for this thesis, all of whom have come from top UK research institutions, the VCs named in the THES interviews have come from a range of universities.

Most of the interview texts have been included below except sections that go into more detail than felt necessary. (These interviews can be found at www.thes.co.uk).

Terence Kealey, VC, Buckingham University

- *Universities should be run solely by academics. The best universities in the world are those of the American Ivy League, and they are run by academics. The connection is not hard to make.*

Michael Thorne, VC, University of East London

- *… We have only to contrast the deep understanding of education that the leadership of the old Further Education Funding Council had with the now terminal decline of the Learning and Skills Council to see what happens when people without a background in education are given high-level management responsibilities in education.*

Eric Thomas, VC, Bristol University

- *Why are we anxious about universities being led by academics? In most sectors, chief executives have substantial point-of-service experience; why should it be any different in academe?*

  The airline industry appoints from within, as does the retail sector. A vice-chancellorship is all about leadership, and having experience of working as an academic is, I would humbly suggest, a great advantage.

  One of the problems in the past for National Health Service chief executives was that the majority of them did not have substantial service delivery experience - that is, only a few have been frontline clinicians as nurses, doctors or allied health professionals. Never mind

how able they are, this placed them at a disadvantage in their leadership of frontline service providers.

It is healthy for the sector that most university leaders have their roots in academe. Furthermore, most will argue that higher education is one of the UK's success stories - hardly overpowering evidence of a leadership deficit.

Roger Brown, VC, Southampton Solent University

- *Although now a professor of higher education policy, I am one of the few vice-chancellors appointed without an academic background, although I had occupied a number of national higher education roles.*

  It is obvious that vice-chancellors need good general leadership qualities.

  These may have been acquired in a variety of settings but you have to have credibility with academics, if not credibility as an academic. This means a real and successful effort to engage with and understand academic values and practices. This can be acquired outside the academy but it isn't easy, and so far only a handful of people have managed it.

Kel Fidler, VC, Northumbria University

- *More and more universities are recognising that they have to be run as a business - a high-volume, low-margin business. In making that simple statement, I have already indulged in the language of business, and increasingly we vice-chancellors do this - we worry about "attracting customers" through our "product portfolio", for example.*

  ... There are other ways in which our businesses are unconventional. Our customers - our students - require an extensive and diverse range

of support activities, both academic and personal; our academic staff are recruited for their individuality and their passion for their subjects and their vocation.

… For these reasons, the person at the helm has to have a deep understanding of the business - the nature of the university, its staff, its students, the balance between teaching and research, and so on. The successful vice-chancellor needs to be something of a businessman or businesswoman alongside this. Success in a vice-chancellor's post is more likely to come from a successful academic - not a brilliant academic necessarily, if the implication of that is research excellence.

Anonymous

- *Universities are strange places to manage; academic staff have loyalties to both their university and their discipline, the latter often being the stronger. Overly dirigiste management that fails to recognise this is unlikely to be successful in the longer term, though it may have some benefits in the shorter term. What is needed in universities is not management but leadership, and this is the critical factor.*

  Senior academic staff, particularly those who have had a leadership role in the development of their own subjects, are often better able to provide such leadership than professional managers, though the best marriage is probably between academic staff providing leadership and administrative staff providing facilitation and support.

  Vice-chancellors coming into universities from business have a mixed record: where they can provide leadership, particularly if they can earn the respect of academics, they can be very effective. But too many of them have found the strains of attempting to manage large and

amorphous institutions without the benefit of any academic respect to be simply too great a challenge.

Anonymous

- *Being the chief executive of any organisation requires that person to understand the business of the organisation but also to be a good leader and a good manager.*

  In terms of understanding the business of a university, there are clearly advantages to be gained from having been part of that business - an academic. That doesn't mean you have to have been a brilliant academic but it is valuable to have been active in research, have been involved in teaching and learning and in other activities such as knowledge transfer.

  This adds greatly to your credibility and also helps in making sensible and grounded decisions about what is possible and desirable.

Anonymous

- *The modern vice-chancellor is the academic leader and the chief executive of a major corporation. He or she may have responsibility for more than £1 billion of public money, for the financial solvency of the institution, for many thousands of staff, have formidable personal responsibility for the implications of health and safety, discrimination legislation, corporate manslaughter and so on.*

  The main task is having a leadership role in producing and delivering a comprehensive strategic plan, working within a funding regime that is at best annual for some funding but more likely to have a lead time of weeks, set against expenditure commitments that are long term. No

wonder head-hunters tell you how difficult it is to obtain ideal candidates for these posts.

To be a successful modern vice-chancellor, you need serious academic credibility; and to drive research and enterprise excellence, you need to understand and appreciate academics and their needs and drivers. You also need to understand basic business operation, business leadership and strategy. Both the academic and business roles come to a focus in the vice-chancellor position - that is where the buck stops and both aspects of the job are equally important. It is not an either/or.

Anonymous

- *There is an expectation that the fundamental purposes of a university are academic and for a vice-chancellor to be credible and to have legitimacy among academic colleagues one needs to have gone through the ranks and have an understanding of the issues and pressures that staff face. I am not sure that this is always a sound criterion, though I can think of a couple of cases where that lack of experience or empathy has been problematic. My own view is that vice-chancellors do benefit from opportunities for formal training and mentoring by more experienced colleagues and that the ability to lead a university effectively is neither innate nor God-given. I have probably learnt more about running this university profitably through my youthful experience of my parents' hotel business than I have learnt from the seminars and workshops offered by the major accounting or management firms or, for that matter, the Leadership Foundation - excellent though their contributions may be.*

Anonymous

- *Organisations need to be run by people who have skills in leadership, decision-making, managing people, financial and business understanding, communication skills and common sense. Unfortunately, many of these essential skills are lacking in the people put in charge of running large institutions.*

2. General Leadership Themes

This section returns to the author's primary data. It expands on the areas of general leadership that were asked in the beginning of the interviews with participants. The section opens with respondents' statements about how leaders perceive their role. It then moves on to address questions of strategy and the important issue of power asking, in particular, whether leaders believe that they can affect organizational performance in the Research Assessment Exercise. Finally, leaders are asked whether they appointed their own top management teams.

Again there are a number of pivotal themes raised.

a) The Role of Leader

- Leadership
- Management

b) Strategy

c) Power

d) Top Management Team

a) The Role of Leader

Each university president was asked to summarize the most 'important element' of their job.

- Leadership

One interesting and common thread raised by most participants relates directly to the leadership literature. It is about the difference between leadership and management – a subject that has been debated for decades according to Yukl and Lepsinger (2005). This takes us back to the introductory chapter of the thesis where the issue of managerialism was raised, where it was suggested that knowledge-intensive organizations may require leaders who are experts in their field, and, concomitantly, that professional expertise may be more important than managerial skills.

Statements, given to the author during interviews, that specifically separate 'managing' from 'leading' include:

Former UK VC -

- *"The chief function of a VC is leadership. Leadership is most important – not management or finance, these can be hired in."*

UK VC -

- *"Academic leadership can be inspirational and directional. Leadership and management are profoundly different. I set goals for the institution in discussion with colleagues. My aim is to create the best environment for academics."*

The majority of participants include 'leadership' in their statements:

UK VC -

- *"To lead and transform the institution without changing it or destroying its raison d'etre."*

UK VC (from a non-academic background) **-**

- *"Providing leadership to an institution. Sounds nebulous. I feel that I am like the captain of an aircraft carrier – an academic institution. I have to steer the ship and facilitate planes taking off and landing, and make sure that the carrier is steady, on a course, and the platform is safe from which to launch. Ensure that the finances are stable, safe for academics to do what they do best."*

UK VC -

- *"My job is to lead. If there were no VC, the place would carry on as it was for a short time. But after 1-4 years the university would lose direction, performance indicators would start to drop, the future of the organization would be unclear. VC's make a big difference! The VC is the only person who can ask 'where are we going?', 'what is our strategy?' I am validated to put ideas forward and design strategy. No one else can do that. The VC can articulate the university's ambition."*

UK VC -

- *"The base principle of CEO leadership is that someone has to get the team from base camp to the top of the mountain. Leadership is about developing a clear strategic plan, and then, having a logical view of implementation. Making sure everyone knows how we are going to get to base camp."*

US president -

- *"Leadership through collaboration and change through collaboration."*

- Management

An interesting point was raised by a former dean in the US. It questions the notion that academics are any worse than those in any other sector at leadership and management. He also suggests that universities are more similar to professional service firms than other industries:

Former US dean -

- *"A fair percentage of faculty are good managers with innate skills. In many ways this is akin to any profession because there will always be some who are better at leadership and management than others. I don't think academics are any different from others in this way. Being a dean at X is like being a CEO of a half billion business ensuring it runs effectively. All faculty salaries are set by the dean. The position is more similar to running a large law firm than running a car company, for example."*

The term 'management' appears considerably less than leadership. Indeed only two participants actually mention, during interview, the term as part of their role as institutional leader – both of whom had come from non-academic backgrounds.

UK VC –

- *"The two most important areas are management of people and resources."*

UK VC -

- *"I manage and lead – some parts need managing and some leading. There is a management job which is to make sure the aircraft carrier runs okay – particularly all the non-academic infrastructure. I am*

accountable for the non-academic performance of the organisation. In terms of leadership I lead the academic departments through salaries, appointments and promotions."

The same university boss then goes on to account for how he prioritizes his time:

- *"My time is spent: 20% fundraising, 40% management – committees etc, 20% external meetings and liaison, 20% own writing and research."*

b) Strategy

Participants in the interviews with the author were asked 'whose role do you believe it is to write or construct the strategy for the university?' There was little or no hesitation among respondents, who, with few exceptions, stated that it was the responsibility of the leader. Indeed it has been argued earlier that university chiefs may have more power than those at the helm of many other industries. It will also be argued that powerful heads may be right for universities if governance mechanisms are functioning properly. One statement, mentioned in the introduction, from a head-hunter who frequently appoints UK VCs seems poignant:

- *"There is no doubt that leaders have an enormous amount of power in universities -- more than in many other organisations where the long-term strategy is firmly laid out. For example, in the civil service, or at the other extreme in Asda/Walmart where the leader is a motivator for the 'troops' but has very little say about the strategy of the business. That is all mapped out long before in somewhere like Ohio."*

The important issue of whether leaders merely *think* that they write the strategy and whether they actually *do* cannot be dealt with fully here. However:

UK VC -

- *"The VC sets the agenda and tone – this is where the VC makes a difference... The VC is the only person who can ask 'where are we going? What is our strategy?' You are validated to put ideas forward and design strategy. No one else can do that. The VC can articulate the university's ambition."*

Former UK VC -

- *"The vision has got to come from the VC. You shouldn't announce on high but you should have a clear idea of where you want to go."*

UK VC -

- *"I determine the shape of strategy. It is rare for me to have a decision rejected. Debates will emerge out of the top team but it is the responsibility of the VC to finally say yes or no about an area of strategy. The buck stops with me."*

UK VC -

- *"The final draft has to come off the VC's PC. It is the role of the VC to put it together and then to get it approved and negotiate the details. It is not the job of any committee."*

UK VC -

- *"The VC creates the vision and inspiration about what the place could look like in 2010. In my case, a big group of us went away for a week-*

end and I presented my vision. We discussed it and decided how best to implement it. I had to sell it to them."

UK VC -

- *"The VC should have the leading voice regarding the strategy and should draft the vision statement. The VC has most interest in the strategy."*

Former US president -

- *"The background of presidents is most intriguing. Though 80% of their day may not be spent undertaking academic activities (i.e. fundraising, etc) the overall direction needs to be decided upon and led by the president. The president is often the only one who has the big-picture perspective about his or her university. If you devolve decision-making too far down you lose control, particularly of the academic direction".*

US president -

- *"I am very involved with the nuts and bolts of deciding the overall strategic direction of … I also decide the policy level direction."*

The same president then goes on to make an interesting point about how leaders are perceived in universities by their peers:

- *"Most faculty care who their president is but they don't believe that presidents can actually create change. This is not done through command and rule but by leading in a fuller sense, and setting the long vision."*

Views from two non-academic leaders:

UK VC -

- *"The head of the institution is the only one who can develop strategy, because you are most informed about the organization. But there is less freedom in a university. The strategic degrees of freedom are restricted in a university. It is more difficult to change the course – the outputs are always going to be about the same."*

UK VC -

- *"There is a strategic planning division that collects data and watches key performance indicators. The Deputy VC, who is a distinguished professor, is very involved. The main question is how to succeed when bench-marking against other UK and international universities."*

Only one UK VC expressed the view that strategy design should be a team venture although he still believes that the VC thinks more about the institution's vision.

UK VC -

- *"It is not the job of an individual but of a group among the senior team to shape the strategy. The VC is the person who thinks mostly about the vision but not exclusively. I need a team to question and speak out against me sometimes. I like lots of ideas."*

c) Power

This section is about power. Specifically, it uncovers the extent to which leaders believe they have the power to change an institution, and also the mechanisms they use to make changes. Chapter 5 is particularly relevant to this section because it focuses on leaders of universities and improvement in the Research Assessment Exercise (RAE) between 1992, 1996 and 2001.

The answers reported in this section are responses to questions that were only directed towards UK VCs, current and former. As an introduction to the topic the author asked VCs: 'How important do you consider the RAE to be?' This area, about the RAE, is substantially different from the thesis focus and therefore, responses to this question have not been reported in this chapter. The follow-up query was more relevant: 'How much can a VC influence the RAE and generally raise the research quality of a university?' This question was designed to uncover how much power a VC perceives he or she has to make such changes.

There was little doubt expressed by VCs that they could influence their institution's RAE performance:

UK VC -

- *"You can affect the RAE by appointing and retaining staff. I am involved with all (or most) appointments and promotions. I believe this is very important."*

UK VC -

- *"The VC is the only one in the university who can influence the RAE. A VC must set the quality standards and keep reinforcing them – pushing the quality line up."*

UK VC -

- *"A VC can make a difference to RAE through a number of mechanisms – research committee, promotions committee, and through appointments."*

UK VC -

- *"I spend a large amount of time hiring people and trying to attract them. I became directly involved and managed the process of making appointments, and also internal promotions. At the previous university I worked at, where I was PVC for research, I spent a great deal of time head-hunting and systematically searching for faculty."*

UK VC -

- *"The VC can have an impact on RAE by creating the right conditions, setting up the right schemes to motivate the best people, offering good facilities and creating the right environment."*

UK VC -

- *"Appointments are crucial – I believe in the Clark Kerr model (creator of the University of California). It is important to make sure the culture a VC creates signals that you are interested in research and allow research ideas to surface."*

UK VC -

- *"The VC can do a lot especially in facilitating recruitment. It is a very important role for VCs to make deals at the top."*

UK VC -

- *"A university must be prepared for it (the RAE) even though its research strategy cannot be designed around it. Having said that, if a VC messes up in the RAE he or she should be sacked! It is the VCs responsibility to make sure that the process is done efficiently and to the best standard possible."*

UK VC -

- *"The RAE is very important in appointment committees and also severance and early retirement committees. Who is entered into the RAE is decided centrally."*

Former UK VC -

- *"The RAE is very important. I wanted to make X a top research university. Now it is around number ... in league tables. We anticipated that it would take at least 10 years but we managed to lift it in 5."*

UK VC -

- *"A VC can only use gentle persuasion, and encourage through mechanisms like appointments, and research grants to some extent. The VC can encourage dialogue and support researchers.*

A non-academic VC commented on his predecessor's input into the last RAE:

- *"He was obsessive about the RAE. He united the faculty and university around the RAE. He and they understood how important the journey was. It was (*my predecessor*) who really put the place on the map in terms of its RAE success. He turned the university's fortunes around."*

d) Top Management Team

Interviewees were asked the question 'did you select your own top management team (TMT) after you started?' As suggested in Chapter 1, the importance of the TMT has been widely covered in the literature on strategic

leadership, initially through the work of Hambrick and Mason (1984) in upper echelons theory.

TMTs in a university setting tend to include the university head plus deputy leaders (who have all been titled pro-vice chancellors -- PVCs for simplicity), but they can also include senior non-academic administrators, most commonly, registrars and finance directors.

Turning to the data, it is interesting to note that almost all the interview subjects in this study selected their own TMT, although it is noticeable that in the UK making one's own appointment into senior positions is not always easy. Indeed, all the UK VCs mention that they had to make changes in their institutions, to allow them to appoint their own people. In the US, in private universities particularly, it is normal for leaders to select their own top team (Rosovsky 1991).

The frustration of appointing into these positions in the UK is expressed clearly in some interview statements.

UK VC –

- *"I changed the top team gradually over time. I had Pro-Vice Chancellors (PVCs) in place when I started ... two of them blocked me from doing anything for 2 years! PVCs were appointed by Senate that had 200 members when I arrived. The system is not right in the UK. It is far too difficult to select our own top team."*

UK VC -

- *"PVCs are elected by Senate who make nominations. I think it is madness that a VC cannot select his or her own top team. I do now have some input through consultation – and I almost always get who I*

want. I did put my own admin people in place though, some of whom I appointed from the private sector."

Among interviewees, changes in top teams are reported on a continuum from the more direct approach:

Former UK VC -

- *"They all went! I introduced new PVCs, COO, registrar, etc."*

UK VC -

- *"I picked my own top team. When I arrived I had 80 people reporting to me, now it is 10."*

to those who introduced change more slowly:

UK VC -

- *"I inherited my top team and maintained them for 2 years."*

UK VC -

- *"Over time I will but not immediately. I will probably keep some in place and move some on."*

UK VC -

- *"I did not set up my own top team exactly but I have a veto on PVCs who are put forward. I also set up weekly management team meetings and selected the membership. This is the top management team."*

And some were in a position where they had a clean slate:

UK VC -

- *"Previously there was no top management team, only one DVC. I appointed full-time PVCs, most importantly for research, and teaching and learning. The Research PVC is a top scholar from a double 5* department."*

UK VC -

- *"There was no top team to speak of when I arrived. I had the chance to start over completely. I appointed a registrar from the private sector, plus 4 PVCs and a deputy registrar."*

As suggested above, the position of US presidents is less ambiguous:

US president -

- *"I do not micro-manage but I appoint deans and provosts who act on my behalf. I oversee their work."*

UK VC -

- *"Amy Gutmann (President of University of Pennsylvania) and Shirley Tilghman (President of MIT) are amazed about the amount of work that I have to get involved with where they can appoint line managers or provosts."*

All the UK leaders interviewed reported that they made changes to the system of appointing top teams (n=13). The most common complaint is about the role of senate in choosing PVCs, and sometimes heads of departments (HoDs). Some of these include:

UK VC -

- *"We have just changed the appointment process for PVCs at X. It is now going to a committee of council. The VC has a veto if he or she does not want a person appointed."*

UK VC -

- *"I now appoint all the PVCs and deans but I had to change the structure to do this. Previously they were elected."*

UK VC -

- *"Heads of Departments (HoDs) used to be appointed by nomination from departments to senate and council. Again, I think this is madness and I have now had it changed. HoD decisions are now made by departments and the VC."*

Leaders in the UK have apparently started to flex their muscles when it comes to the old notion of collegiality:

UK VC -

- *"I made it clear to Senate that has 60 members; they may have had access and input into planning and resources before but not any more. Senate is to have no budgetary powers and if they were not willing to accept this then I was not willing to stay in the job… Collegiality doesn't mean everyone makes decisions."*

UK VC -

- *"The committees do not take decisions – even if that is what they think they do. They merely endorse decisions. I have tried to weaken the committee structures or at least function outside of it. I feel that I tend*

to take the committees with me in terms of the decisions I want to make."

UK VC -

- *"The VC now has total say on who gets the job (of PVC). Faculty don't have any input."*

And from a former US dean:

- *"I am strongly opposed to faculty making the selection of presidents, and generally I am against the notion of democracy."*

It is interesting to note that non-academic leaders reported that they rely on members of their top team for input into academic issues, for example, in appointing faculty:

UK VC -

- *"I always use academic leaders to mediate with faculty and rely very heavily on them. I have felt like an alien many times. I use academic members of my top team as cultural mediators, particularly my Deputy VC who is a very distinguished professor. He was the person my predecessor put in charge of the RAE. I promoted him to Deputy VC. He is my academic conscience and broker. I recognized that running a university is not like running a company and that I needed a link person."*

UK VC -

- *"When I make senior appointments I tend to rely on senior faculty for advice – I generally draw on the extensive academic networks available to me."*

One VC emphasized the importance of delegation.

UK VC -

- *"I do not micro-manage nor do I get into any area of operations. I devolve all responsibility for operations to my top team. There are 4 PVCs and a registrar and deputy registrar. There are 2 women in the TMT. I feel that women in the team are very necessary. I closely lead and manage the top team but I also recognise what I can actually do in terms of time."*

3. Leadership Appointments and Governance

The third section of this chapter looks briefly at how leaders are selected into their positions. Two sets of interviews are reported. The first group of statements are drawn from the same 23 university heads. However, only the sample of UK VCs was asked questions about their appointment process. The second sets of statements are from members of a committee created to appoint to the position of vice chancellor. Before the interview material in this section is presented, a number of theoretical issues are raised and discussed.

The topic of this thesis is leadership and organizational performance. A potential outcome is that the findings may help shed new light on the types of leaders that research universities should be appointing.

There are two other significant issues attached to the process of appointing leaders. The first, and arguably the most important, is about governance. university governing bodies, usually titled 'councils' in the UK and 'boards' in

the US, are made up of academic members from key university groups such as a 'senate', and also lay members from business or the community.

The above comments from participants on strategy and power suggest that university leaders have extensive strategic and executive authority. If this is the case then it raises further questions about the appointing process, in particular about the role of the governing body in deciding both the future of the institution and its leader. For example, it is pertinent to ask, who ultimately decides upon the long-term strategy of a university? Is it the leader or the governing body? This is especially relevant if leaders are only in post 5-7 years. Yet it may take an institution twenty or thirty years to make substantial changes, like becoming a top-class research university.

A problem may arise in a university if a new leader is appointed every few years, being given quite substantial executive powers, but having different strategic priorities from his or her predecessor. In this case the institution could perhaps be pulled in a number of different directions over a ten to twenty year period. Potentially, some leaders may even choose strategies that can be achieved within their tenure of office but which may not be beneficial in the long-term for their university.

Arguably, a difference in emphasis between leaders at some level is warranted and desirable; also, opportunities and unplanned events will inevitably arise during each head's tenure. But what if a university president proposes a substantial change for their institution, for example an acquisition or merger, or establishing a campus overseas? Who then should decide the right course of action -- the faculty, the top management team or the governing body? As the key workers within a knowledge-intensive organization, the faculty are undoubtedly an important constituency. But they may also have many different priorities, and importantly, if they feel

unhappy they can withdraw their labour and move to another university. The top management team have likely been appointed by the leader, and therefore they may not be impartial decision-makers.

So, then, does the long-term future of the university lie in the hands of the governing body? Should it be assumed that it is the university council looking out for the lasting development of the institution? This raises the important issue of 'governance as leadership' (Chait, Ryan & Taylor 2005) which will be opened again in Chapter 7.

These issues are further turned over in the interview data. Different questions have been posed to the different constituencies reported in this section – UK VCs, and members of a VC selection committee. The group of leaders were asked: 'Taking you back to your appointment process, were you aware of what the selection committee was looking for in terms of a candidate?' It was then followed up with: 'Did you feel that you sold the panel a strategy, or alternatively did you fit a predetermined type that they were looking out for?' They were also asked who was on their appointment panel.

The responses from UK VCs presented below shed some light on the questions raised in the introduction to this section, as potentially do the statements from members of a selection committee whose responses follow.

Former UK VC -

- *"With both chair and the committee neither had a strategy but they had a view about what was wrong. There were 50% academics and 50% lay members plus a lay chair."*

UK VC -

- *"The selection committee had certain views and my opinions married with theirs to produce a match."*

UK VC (from a non-academic background) -

- *"The selection committee were very keen to have certain things – someone with a public profile, engagement in public policy, knowing how to manage a complex organization. Beyond that it felt quite unclear. It is a bit of a game to show that you can think of strategy, but you can't really know the place until you are in the job."*

UK VC -

- *"I really didn't want the job unless I could have carte blanche to do something very new. I sold them a strategy more than the other way round."*

UK VC (from a non-academic background) –

"The job requirement was not precisely defined. I was amazed to be selected because there were a number of very successful academics on the shortlist. I think the main reason I was appointed was because I had experience of mergers in my former career and the Chair of Council was himself a former industrialist. I also think the committee believed that I would be good with liaising with government. The selection committee had 50% academics and 50% lay people and the secretary as observer."

UK VC -

- *"The committee wanted a change when they chose me. I was aware of that. The selection committee understood me well. We had an*

interesting exchange about strategy when I made it clear that I decide the strategy for the university."

In some ways the confusion about whom to choose as university leader is clear from the next statement. The context is a top research-oriented university. It attempted to appoint a civil servant as leader who does not take the job. The university then went on to appoint an extremely distinguished scholar. The leader selected after the scholar was again a civil servant.

Former UK VC -

- *"I was only appointed because their first choice turned them down – he was a civil servant. It then went to head-hunters which was how they found me."*

One important question that arises from these statements is: How much do lay council members understand research universities?

UK VC -

- *"Regarding the Council and how much they know, we interviewed our council members and some interesting stuff came out about how little they do know. For example, one didn't even know what the RAE was."*

UK VC -

- *"Lay members of council and especially business people profoundly do not understand the culture and business of a university. I think that lay members judge by character not by using objective evidence."*

A comment about the US comes from one former president:

- *"Private universities are much better at selecting boards. They choose people who are only deemed to be good for the university."*

Interviews with Members of a Selection Committee Created to Appoint a UK Vice Chancellor

University appointment committees in the UK are commonly made up of a combination of lay people and academics (with one or more non-academic administrators as observers). The process is typically organized and controlled by university governors, and led by the chair of council, usually a lay member, whose position is potentially vital. It has been suggested above that governing bodies could be viewed as the guardians of universities, in particular of their long-term strategic development. If this is the case then it is not unreasonable to assume that those appointed into the post of VC might have been selected with a specific long-term perspective in sight. However, the extent to which this is central to the practice of VC appointments seems questionable from the data in this single case-study.

It is clear from selectors' responses here that information about the type of leader felt to be appropriate came from many places. Indeed, the most common source was from interviews between the head-hunters and a broad cross-section of the university community; who included "administrators, students, academics, union representatives, council members, and we took suggestions from an email that was sent out from the chair of the selection committee". This perhaps even means that, in practice, a university leader might be chosen based on random opinions of university staff and stakeholders, instead of being selected according to criteria that link to the long-term aims of the institution.

The interviewees in this section, whose statements are set out below, were members of a VC appointing committee from a research university in the north of England. There were 13 members in the group, who included four lay people, one of whom was chair of council and also chair of the committee, three academics, one administrator, and a representative from the student union. Finally, three senior administrators were in attendance as observers only.

A little background information about the selection process is necessary. It involved a number of stages: the first being to appoint a search company or head-hunters. The head-hunters worked with the appointment panel to develop the selection and interview program. A central coordinator throughout the process was the chair of council, a lay member, who also chaired the appointment committee.

The second stage involved communication. The chair of the committee sent an email to all staff asking them to comment on the type of leader the university should be looking to interview, and also requesting potential names of candidates. Feed-back was then fed into the group. This was followed by interviews held with head-hunters and a cross-section of staff, students, academics, administrators, union representatives and council members. The decision about whom to approach came out of discussion between the head-hunters and members of the selection panel.

In this case-study a selection of people were interviewed by the author. Seven members of the appointment committee were interviewed, 3 observers from the administration, a head-hunter, and the successful candidate (n=12). The responses, presented below, were in reply to the questions: 'Who or how did you and the selection group decide upon the type of person you were looking for?' and 'how much was it a group

decision, how much did it come from outside?' Only the occupational position of a person is identified.

According to these interviews the dominant source of information came apparently through the head-hunter's interviews (although there is some lack of clarity).

Faculty member

- *"The most important impetus came from the head-hunter's one-on-one interviews with faculty. This is where the person-spec came from. There was never any agreement about it. A similar spec came from lots of sources."*

Faculty member

- *"The head-hunters interviews were very important and were condensed into a useful document. The chair's emails were also constructive. Feedback came from Senate and Council in an understated way. Head-hunters interviews were much more important. The research profile became solid later. "*

Senior administrator, observer

- *"The spec came through the consultation process, mostly the head-hunters' interviews. The university had no strategy."*

Head-hunter

- *"Input came from a bit of everywhere. We spent three days consulting with stakeholders in the university -- students, academics, administrators, union representatives, council members, and the email that was sent out from the chair of the selection committee."*

Senior administrator, observer

- *"Input came mostly from two areas, from the senior academic community especially from individual interviews with the head-hunters, and also from the observers."*

Student union representative

- *"Head-hunters' interviews with people one-on-one were very helpful. The head-hunters' interviews outlined what people wanted for a VC. In the first meeting we chatted about feed-back. Not a lot of conversation about who we were looking for."*

Faculty member

- *"Through emails and any other method of stimulating greater interest from the academic community. A highly respected researcher was the first choice."*

Senior administrator, observer

- *"The feedback invited from the community was very helpful. A lot of people tell you what they don't want. Strong academic came out of head-hunter interviews with academics and in the emails."*

Administrator, member

- *"We were influenced by the quality of leaders and their experience. The main information came from academic members – strong research focus and credibility. Balance between academic and leadership."*

The chair of the selection committee and a second lay member both said that the type of person the institution was looking for was identified earlier.

Chair of committee and lay member

- *"We had quite a clear model of the type of person we wanted. This was created in advance. Of course humans don't all fit models exactly. We had a long list of what we were looking for. The input for the list and model came from Senate discussions and with Council members who were singing a similar song -- researcher, researcher, researcher!"*

Lay member

- *"It came out of the discussion beforehand. That's where the ideal type was decided. But you can't stick to boxes. We wanted a strong researcher."*

The candidate who was selected to be vice chancellor was quite clear that she was selected according to a clear strategy by the university.

The selected candidate

- *"I felt that there was unanimity in terms of what they were looking for. I felt that I fitted a template of being research active -- that the university had a clear strategy."*

Overwhelmingly the characteristic identified by most on the selection committee was that the candidate should be an academic with a strong research background. This spec may have stemmed from the selection panel's discussion, and also in the feed-back from head-hunter interviews and emails from the chair. However, it seems interesting to note that the candidate who was runner-up -- their second choice -- was quite different from the successful applicant. Although the person had come from a traditional academic background the candidate was not an accomplished researcher. Using the method described in Chapter 2, the P-score of the runner-up candidate is substantially below the average P-score of the 165

VCs in the longitudinal study presented in Chapter 5, whereas the candidate selected for the position of VC has a P-score well above the average in the same group.

This small case-study raises two important questions: First, to what extent did the selection committee select a leader that fit with a predetermined university strategy? Drawing from the interviews it would appear that the main input came from emails and meetings with a range of university stakeholders. Second, with regards to the dominant characteristic or leader-type identified through the above process, the term 'researcher' appears in people's interviews the most. The committee did eventually appoint a distinguished scholar but the fact that the runner-up candidate had a weak research background stands out in contrast.

The issues that have been raised here are expanded upon in Chapter 7.

Table 6.1

Participants in Qualitative Interviews

With some exceptions, US interviews (in the first table) took place in 2005 between March and May and UK interviews (in the table overleaf) took place in 2006 between January and June. Professional affiliations correspond to the dates the interviews happened.

US Interviews

	PARITICANT	POSITION	INSTITUTION
1.	Derek Bok	Former President	Harvard
2.	Kim Clark	Dean	Harvard Business School
3.	Amy Gutmann	President	University of Pennsylvania
4.	Patrick Harker	Dean	Wharton School
5.	Jeremy Knowles	Former Dean	Faculty of Arts and Sciences, Harvard
6.	Henry Rosovsky	Former Dean	Faculty of Arts and Sciences, Harvard
7.	Lawrence Summers	President	Harvard
8.	John Heilbron	Former Vice Chancellor	Berkeley, University of California
9.	Shirley Tilghman*	President	Princeton

* President Tilghman was asked to comment on my work (see Goodall 2005) for the newspaper The Princetonian. She was not interviewed by the author but her comments have been included in the thesis.

UK Interviews

	PARITICANT	POSITION	INSTITUTION
10.	George Bain**	Former Vice Chancellor	Queen's University, Belfast
11.	Glynis Breakwell	VC	Bath University
12.	Bob Burgess	VC	Leicester University
13.	Ivor Crewe	VC	Essex University
14.	Howard Davies	Director	London School of Economics
15.	Anthony Giddens	Former Director	London School of Economics
16.	Alan Gilbert	VC and President	Manchester University
17.	David Grant	VC	Cardiff University
18.	John Hood	VC	Oxford
19.	Andrew Pettigrew	Dean	Bath School of Management
20.	Richard Sykes	Rector	Imperial College
21.	Eric Thomas	VC	Bristol University
22.	Nigel Thrift	VC	Warwick University
23.	Bill Wakeham	VC	Southampton University

** Also former Dean of Warwick Business School and London Business School.

Table 6.2
Interview Schedule

1. What do you consider the most important element of your job?
2. Did you select your own TMT after you started?
3. Whose role do you believe it is to write or construct the strategy for the university?
4. How important do you consider the RAE to be? (UK VCs only.)
5. How much can a VC influence the RAE and generally raise the research quality of a university? (UK VCs only.)
6. How involved are you in investing/de-investing in academic departments? (UK VCs only.)
7. Taking you back to the appointment process, were you aware of what the selection committee was looking for in terms of a candidate? Did you feel that you sold them a strategy or that you were fulfilling a prototype of theirs? (UK VCs only.)
8. (Author explains her research and statistical findings.) Why do you think the correlations exist?
Note: These questions were asked in interviews with UK VCs. Questions directed towards US participants were marginally different. This was because the interview schedule became more focused as the study progressed.

Table 6.3
Appointment Committee Interviewees and Schedule

10 interviews were held with members of a selection committee and one interview was with the individual chosen to be vice chancellor. The university is research focused and is based in the north of England. Its identity will remain confidential as will all panel members' names.

The interviews were completed with members of the appointment committee as part of a report that is separate from this thesis. However, some of the data from these interviews are referenced in this study. These two questions relate to the material that has been used.

1. How did you and the (selection) group decide upon the type of person you were looking for to lead the university?
2. How much was it a group decision? How much did it come from outside?

Chapter Seven

Analysis and Discussion

"The leader should represent the aspirations of the institution"

Former UK Vice Chancellor.

A theory of strategic leadership in knowledge-intensive organizations was offered in Chapter 1. It attempts to explain why a scholar-leader might be associated positively with the success of a research university. Statistical evidence supporting the proposition was offered in Chapters 3 to 5. This chapter draws on the interview data to further discuss the analytical arguments.

The theoretical framework, presented earlier in the thesis in (Figure 1.2 p. 23), has two interrelated parts. The first, which is behavioural, suggests that leaders with high professional ability have 'inherent knowledge' of the organization's core business. This influences a leader's 'inherent preferences' causing a scholar-leader to prioritize, over other activities, those related to research. The second factor refers more to those who follow. Therefore, it is external to leaders. It argues that if those being led view their organizational head as credible, a leader's influence and authority is substantially enhanced. Inherent preferences and credible leadership are viewed as being requisite conditions or different sides of the same coin.

As has been raised several times, central to this theory of strategic leadership is the context in which it is being examined. The arguments laid out are not necessarily generic to all leaders. They may be relevant only to those in knowledge-intensive organizations, and possibly, because of cultural similarities, heads of professional service firms.

In addition to a concluding discussion and analysis, this chapter also offers a short section which raises questions about the appointment of university leaders. It draws from a case-study, presented in Chapter 6,

and therefore the comments are limited to identifying possible weaknesses in the selection process. It highlights an area for future research.

Inherent Preferences and Credible Leadership

This thesis argues that if a governing body has decided upon a strategy of raising or maintaining the research status of their university then there may be a strong organizational 'ethos' (Cummings and Wilson 2003) to appoint a leader who is a scholar. The central argument is put succinctly by a former head interviewed for this study: *"Whether a leader is an outstanding researcher or just respectable is relative. It depends on where an institution is and where it wants to be… The leader should represent the aspirations of the institution."*

The notion that universities should only be led by experienced academics was a view expressed by almost all presidents and VCs interviewed. Two leaders from non-academic backgrounds said that it had been initially difficult for them to be accepted as head of their university. One VC described feeling like an 'alien'. Most interviewees were somewhat more positive about the principle of appointing leaders from professional service firms or R&D, because it was suggested that the culture is relatively similar. One of the non-academic appointments was clear that he had been given the top job because he had experience specific to an area that was required by the university at that time. Overwhelmingly, participants spoke out against the appointment of business people to head up universities and business schools.

Interestingly, of the presidents leading the top 100 universities in the 2004 world ranking (as discussed in Chapter 3), all had PhDs and only two had ever worked outside academia. That 98 of the top 100 universities in the world appointed a scholar seems significant. Somewhat less surprisingly

maybe, of the 100 deans in Chapter 3, nine came from a non-academic background, though two of the nine have PhDs. Finally, of the 165 UK vice chancellors in Chapter 5, only eight, or 4%, are not career academics. Of the eight, one came from an R&D background in industry, another came from a professional service firm, and six were civil servants.

A particularly common theme expressed by heads of universities was the importance of faculty selection to the future success of a university or business school. This issue was raised by most of those interviewed. A US dean said: *"The most important part of the job of dean is the recruitment and retention of top faculty. Appointing good staff is the key to sustaining the position of a business school or university."*

But the process of selecting others may be deeply psychological and social. Another VC highlights this point: *"... I have found that like-appoints-like, so you must have the best faculty on selection committees. Many people who are no longer research-active tend to put themselves forward for committees. But if selection committees become too full of non-researchers the quality of appointments gets down graded."*

An interesting example is offered by one VC: *"I was recently in an appointment committee where the academic department doing the recruiting thought that they (the department) were better than anyone else did. Three candidates were short-listed. The department picked the opposite order of candidates to the rest of the appointing committee. They put the worst candidate first. I think they did this because they were weak researchers and therefore lacked in confidence. Confidence is infectious."*

A US university president commented that it might be difficult for, in the president's words, a level 2 or 3 person to appoint a level 1 person,

because someone who is classed as 'better' may induce negative self-feelings. Thus we as humans may avoid such situations. This argument draws from social comparison theory (Festinger 1954) in that we assess ourselves against others. Indeed, negative self-feelings can be traced directly to, and are antecedents of, processes of social comparison (Stiles & Kaplan 2004). Clark & Oswald (1996) and Luttmer (2005) show that job satisfaction and happiness seem to be related to how the self compares to similar others and to neighbours.

The challenge of selecting someone better than ourselves is expressed in a statement from a US dean: *"I have on occasion met faculty who put the institution above their own position and chose to appoint someone better than them. But it is not common. It's a natural human reaction to find it difficult to select someone above you."*

This can be further explained through self-verification theory. It posits that individuals need their self-view constantly confirmed, whether that self-view is positive or negative (Swann 1990, White and Harkins 1994). Swann suggests that "good researchers have positive views of their research capability and weaker researchers have positive views of other talents, such as administration, teaching or whatever. So they may prefer similar others because they give them verification of their specific self-view, or because they have the same 'shared reality' (Hardin & Higgins 1996) in that they value the same things" (personal correspondence with Swann, June 3 2005). As one UK VC said: *"Good people only ever want to work with good people."* This may explain the attraction emanating from a group of respected researchers: *"When I contacted top scholars many would ask, 'Who else is in the department?'"* (Former UK VC).

Eminent researchers are also more likely to exert a pull on research funding and top quality equipment. This links to the section in Chapter 6 on the concept of a 'quality threshold', specifically the importance of

leaders setting the standard in their institutions. This argument is put succinctly by one US dean: *"Leaders are the final arbiters of quality. Therefore it is right to expect the standard bearer to first bear the standard."*

If, as one former UK VC said: "*Everything in a university flows from the academic value of faculty",* then this takes us back to the issue of selection. Thus, given the psychological difficulties attached to selecting individuals who are 'better' than us, it may be prudent to appoint a leader who is a top scholar, or at least one who represents "*...the aspirations of the institution".*

These arguments suggest that having inherent knowledge of the core business not only influences leader-behaviour towards prioritizing the selection of faculty but that it may also instil the confidence to assess quality.

The second part of the thesis's theoretical explanation is about the role of *credible leadership*. Responses referring to issues of credibility were the most common when interviewees were asked why they believed the correlations in the study exist. Credible leaders can be symbolic (Pfeffer 1981). For example, university governors may wish to use the appointment of a top scholar to signal a change in institutional strategy, or even that there will be more of the same. Signals are important, both to internal and external stakeholders, as expressed by one US president: *"Being a researcher sends a signal to the faculty that you, the president, share their scholarly values and general understanding. It also sends an internal signal to colleagues that research success in the institution is important."* Crucially, a scholar-leader may also be viewed as credible because he or she signals that a leader's *"value system is not too far from the values of those who are being led"* (UK VC).

Being a successful research academic may also help in attracting faculty, particularly 'stars', to a university, which has perhaps become a preoccupation the world over. Having a president who is a notable scholar may enhance the appeal of an institution to students and potential faculty. Appointment committees may also select high-profile academics as presidents for external reasons. The alumni may be encouraged to give more generously. Gaining greater media exposure for the institution may also be a motive.

Leadership and Power

The important issue of power emerged clearly from the interviews in Chapter 6. For a scholar-leader, or in fact any leader, to be able to make an impact in an organization they arguably must have power. The concept of power can be loosely defined as having influence and authority[27].

It was evident from the vice chancellors interviewed for this thesis that, in UK universities, leaders perhaps are gaining more power. That European universities are moving more in the direction of the 'strong president' model was suggested earlier by Trow (1999). In a paper analyzing the processes involved in reforming biology at Berkeley in the eighties, Trow is quite clear that the changes that led to great expansion and intellectual developments at Berkeley would not have happened if the then leader had not had substantial powers (1999). Trow asks how it is possible for weak leaders with minimal resources and no direct reports to respond to the internal problems that arise in disciplines, for example a decline in research quality, or the big changes that happen intermittently in science. Many attribute the decline of some of Europe's great universities to weak

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[27] The nature of a leader's power has been debated since Machiavelli and Max Weber. In more recent literature it has been discussed by Handy (1984), Bass (1985), Bryman (1986), House (1988, 1991), Bensimon (1989) among others.

institutional leadership married with an overly powerful faculty (Trow 1971, Rosovsky 1991, Middlehurst 1993, Graham & Diamond 1997).

Trow states that 'every advanced nation has to ask the question of where authority and resources are best located to respond to problems of rapid scientific advance (and decline)' (1999, pp. 25); in other words, who are the arbiters of quality and the propagators of change? His answer is 'strong presidents' of research universities. Trow's paper is interesting because he argues 'that authority must have certain characteristics to be effective' (1999, pp. 25). He goes on to raise a number of factors that are required, for example adequate resources attached to the position of president, an intimate knowledge of the scientists in their institution, a top management team, among others. Yet he falls short of suggesting the one leader characteristic that is in some ways synonymous with institutions like Berkeley – a high level of scholarship.

In the world ranking reported in Chapter 3, Berkeley is positioned number four. It is led by Robert Bergeneau[28], a Canadian who is one of the most highly cited physicists in the world; according to ISI he is among the top 1% (see www.isihighlycited.com). The leader of Berkeley (titled vice chancellor) that Trow refers to as having been central to the successful changes in Biology, Roderick Park, was himself a renowned scholar. Yet this observation is not made by Trow (1999).

Case-Study of a Leader's Appointment

The focus in this brief concluding section is on those who choose leaders. It emerged from the interview data in Chapter 6 that there can be a degree of ambiguity surrounding the selection of a leader, particularly in terms of knowing the type of candidate a university should be looking for.

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[28] When this research was being conducted in 2004-2006.

Although only a single case-study is included in the thesis – ten members of a university appointing panel, one head-hunter and the successful candidate (n=12) – it raises interesting questions about the selection of university heads, and issues of strategy and governance. Vice chancellors interviewed for this study also report on their own appointment process.

Universities are governed by councils in the UK and by boards in the US. Governing bodies are generally accepted in the literature as being 'in charge' of universities in the long-term (Birnbaum 1988, Bowen 1994, Freedman 2004, Hammond 2004). Chait et al. (2005) suggest that, in not-for-profit organizations, '... in theory if not in practice, boards of trustees are supposed to be the ultimate guardians of institutional ethos and organizational values' (Chait, Ryan & Taylor, 2005, pp. 3). They go on to suggest that boards are 'charged with setting the organization's agenda and priorities, typically through review, approval, and oversight of a strategic plan' (Chait et al. 2005, pp. 3).

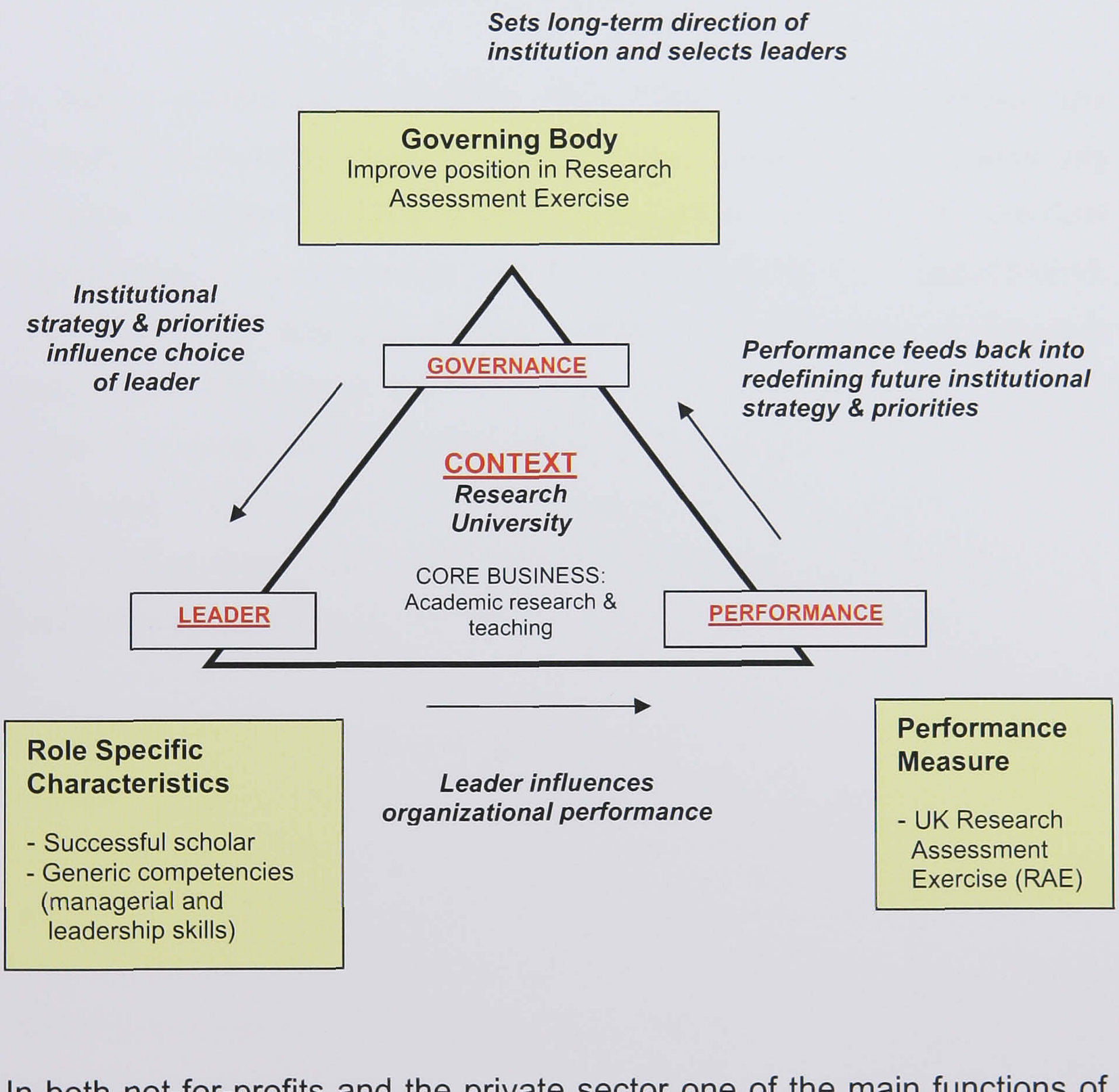
Although there are many differences between the private sector's remit and that of universities, which will be reflected in the actions of boards (see Bowen 1994), their specific function is very similar. O'Neal and Thomas (1996) summarize the three primary roles of executive boards in private companies as being supporting top management, monitoring and controlling the top team, and designing corporate strategy, although they point out that the board's involvement in strategy is usually limited to overseeing and ratifying.

Figure 7.1 presents a model representing an 'ideal' governance structure in a university that wishes to raise its performance in, say, the Research Assessment Exercise. An obvious question emerging from this model is how many university governing bodies actually have long-term strategies for their institutions? To change the direction of a research university

perhaps takes many tens of years and, importantly, it also means being influenced by the strategy when appointing appropriate leaders. Of the sample of VCs interviewed for this thesis, only one reported that his university had a strategy that would continue beyond his tenure as leader. Manchester University has a strategic plan that runs to 2015.

Figure 7.1

Model Explaining 'Ideal' Governance Structure



In both not-for-profits and the private sector one of the main functions of boards is to appoint the organization's leader. It seems clear from most of the statements in chapter 6, in the case-study university, that there was little initial consensus about the type of leader the panel were looking for. Also, in determining the right sort of individual to appoint, a range of

opinions were sought and seemingly relied upon. The most common source, as identified by the committee members, came from interviews with the recruitment firm.

This was explained by the head-hunter himself: "*Input came from a bit of everywhere. We spent three days consulting with stakeholders in the university -- students, academics, administrators, union representatives, council members, and we took suggestions from an email that was sent out from the chair of the selection committee.*"

A senior administrator confirms this: *"The spec came through the consultation process, mostly the head-hunter's interviews. The university had no strategy."* This comment identifies one of the potential weaknesses in the governing body's approach to the VC's appointment. The panel was selecting a new leader who, according to the vice chancellors interviewed for this thesis, will have power. Yet it would seem that there was ambiguity about the person spec insofar as the governing body appeared to have no predetermined strategy. Indeed almost all of those interviewed emphasised that input came mostly from interviews and emails with members of the university community.

It might be fair to conjecture that it is unlikely that the CEO of a private company, with a £400 million turn-over, would be selected by inviting comments from all staff about the type of leader the board should appoint. Instead one might expect a governing body to look for a leader who fits, generally, the criteria that they believe are necessary to develop further the university's strategy (preferably long-term). Indeed, this is built into the roles and processes of private sector boards which have selection and recruitment as a formal part of their responsibilities (having sub-committees with this as their sole purpose).

A problem that might exacerbate this situation further, and of relevance to this research, is the lack of empirical evidence available about the type of leaders most suited to running knowledge-intensive organizations. It is hoped that this study goes some way to providing information for governing bodies and recruitment agencies.

Developing a better understanding of university governing bodies would also be beneficial. For example many, if not most, university councils and boards are chaired by people who have not come from academia. A number of those interviewed for this thesis said that they felt their lay council members had very little understanding of the core business of universities. Yet these bodies perform a central role in appointing university leaders, as mentioned above. One non-academic VC who came from industry expressed his surprise at being given the job of leader. He said that he believed the decision to appoint him had been favoured by the chair of the university's council who himself had come from industry.

This section has raised some peripheral but important issues associated with appointing presidents and vice chancellors. It focuses on how governors choose leaders, and asks are they being selected as part of a long-term strategy? The leaders interviewed in Chapter 6 reported that they write their university's strategy. How then do these two situations co-exist? This may be an area for future research.

Chapter Eight

Conclusion and Future Work

"You have to know the game -- if not you lack legitimacy. Being a distinguished researcher gives you legitimacy in either a business school or a university. And legitimacy gives you authority as a leader."[29]

This is the first study that goes some way to answering a question that has circulated for many years: should universities be led by scholars? The answer is yes. Using empirical evidence from four data-sets, this thesis argues that research universities tend to perform better if led by an accomplished scholar. This suggests that technical ability should be prioritized over managerial expertise. It is argued that because the core business in these organizations is knowledge centered, specialists, not generalists, are required as leaders. The study contends that research universities ought to be treated as knowledge-intensive organizations, not as public-sector bodies, because their core business is in generating knowledge not in service provision. The approach adopted here contrasts somewhat with recent trends, particularly in the UK, towards a culture of managerialism.

This dissertation does not claim that research universities should in every circumstance be led by scholars. There may be important exceptions. On occasion, different types of leaders will be required to address different types of problems or challenges. But there is strong evidence presented to suggest that if a research university chooses to improve its performance, or alternatively maintain a consistent path, it may be propitious to select a noted scholar as its head. As one former UK VC suggested, a leader should represent the aspirations of a university. If the institution wishes to raise its research performance from third to second tier it should appoint a second or first tier academic leader.

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[29] Former UK VC and business school dean.

This thesis argues that scholars make more effective heads of research universities for reasons that are both internal and external to the individual. The first factor is behavioural. It is suggested that by having inherent knowledge of scholarship, derived from a focus on research whilst a career academic, a scholar-leader has a greater knowledge of the core business of a university, which will give them an advantage in making decisions. Inherent knowledge is partly expressed through a process of inherent preferences, which lead to a prioritization of those areas linked to research performance. A leader also sets the quality-threshold of an institution; therefore, if a university is striving to raise its research reputation or hire top faculty, it may be beneficial for its leader to be at least equal in quality of scholarship to the desired target.

The second explanatory factor presented here is that credibility is essential when leading knowledge workers. This comes from followers. It is established partly through the level of technical ability a leader has acquired in his or her career. Credible leaders signal their shared values to the community. They are more likely to instil trust and concomitantly to command greater authority. In universities, where traditional hierarchical manager-employee relations do not operate, this may be crucial. A distinguished scholar at the apex also sends a message to his or her university community that a culture of research will prevail.

This thesis goes on to raise questions about how leaders are appointed. It suggests that governing boards may not be making selections to the top post according to a predetermined university strategy. In a case-study in Chapter 6, interviews with members of a single appointment panel in a UK university suggest that selection criteria seem to be arrived at through an arbitrary and somewhat random process -- one that is unlikely to be found when appointing to the post of CEO in companies with a similar financial turnover. It was acknowledged, however, that this

situation may have arisen because of a lack of empirical evidence available about leaders of knowledge-intensive organizations.

Future Work[30]

As mentioned earlier, this is one of the first inquiries of its kind. Empirical studies focusing on institutional leaders in higher education, and generally in knowledge-intensive firms, are rare -- as is research that combines quantitative with qualitative methods.

Future work must attempt to replicate these findings among larger populations of university leaders. This would also allow for a greater number of control variables to be used, for example executive pay or research income.

It is also suggested in this thesis that leaders who are top scholars attract other scholars. This assertion should be tested further. Academic appointments prior and post to the arrival of a scholar-leader need to be examined.

Universities in the US are likely to offer the best source of data because of the mixed economy of higher education institutions. The US case would allow for comparisons to be made between public and private universities. It would be interesting to explore whether the hypothesis holds in other forms of knowledge-intensive organizations, for example in professional service firms such as managing consultancies, accounting and legal firms, and in research and development services.

This thesis also throws up research questions about how leaders are selected, and these should be explored by future researchers. Leaders

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[30] The suggestions for future work outlined in this section form part of a proposal submitted for funding by the author.

are appointed by governing boards. Yet a number of university heads interviewed said they had doubts about how much lay members on governing councils understand the business of universities. A former US President said: "Private universities are much better at selecting boards. They choose people who are only deemed to be good for the university". How then are members of governing bodies selected? If, as is suggested in the thesis, like-appoint-like then does this also happen more widely at the board level in that people appoint leaders who look like themselves? It will be interesting to compare data on the membership of boards in private US universities with those in US public institutions and on university councils in the UK. Does involvement of the public purse influence board membership? Again, new research, stimulated by the ideas of this thesis, is needed.

A number of important questions also emerged from the case-study on the selection of a UK vice chancellor. For example: what type of person does a board want, and is there consensus among governors about the type of person for whom they are looking? What strategy does the board believe a candidate should fulfil, and what brief is passed on to the selection panel? Finally, how close is the ex-post fit between the successful candidate and the type of person the board ostensibly sought? These questions should be addressed in follow-up research.

Though not reported in the thesis' findings, another noticeable pattern that emerged from the data warrants further examination. It appears from the UK data that leaders selected into a university tend to alternate between being a strong scholar only to be followed by a weaker scholar. We might call this an alternating-leader cycle. This raises the question: are individuals being selected in part because they differ markedly from their predecessors? Anecdote might have us believe that an alternating-leader cycle is common. But there is no empirical literature that examines this issue. An important next step would be to try to identify

whether there is statistical evidence for this pendulum effect in the selection of leaders (guarding against measurement error that might generate a spurious statistical relationship) and, if so, whether it affects organizational performance.

Possible Limitations

There are, potentially, some weaknesses in the methodology used in this thesis. These are outlined below with suggestions of how they might be addressed in future research.

- *Many factors influence the performance of a university. This makes the precise role of a leader difficult to identify.*

  In the longitudinal chapter, apart from the main independent variable of a leader's citations, three control variables are included. Beyond these three, identifying other independent variables may be beneficial for future studies, for example, allowing for institution's age, history and reputation -- although some of these may be hard to quantify. Future research might attempt to further understand how university leaders influence organizational performance by more precisely separating institutional fixed effects from leader-related variables.

- *To understand more exactly the 'how' processes it might be valuable to include detailed case-studies of leaders in universities.*

  Theoretical propositions are offered in Chapter 1 with further analysis in Chapter 7. Future research might choose a different method of explaining the 'how' processes or transfer mechanisms, by recording the actions of leaders over time, through case-studies. Doing this, might allow for greater weight to be assigned to causal explanations.

- *The longitudinal sample is quite small. Future work might use a larger sample, one that can be observed over a longer period of time.*

  UK universities were chosen for the longitudinal study because of the usefulness of the measure of university performance available in that country as explained in Chapter 5 -- namely the Research Assessment Exercise (RAE). The performance of 55 universities was measured between RAEs 1992, 1996 and 2001. The number of institutions was chosen because they, and only they, appeared in the three assessments[31]. The higher education (HE) sector expanded in the UK in 1992, making it difficult to include post-1992 or 'new' universities in this study. Future research might examine whether a similar pattern exists across all UK universities or even just among the newer institutions. It is also important to note that universities may take many years to develop and change. Looking at patterns over a longer stretch of time would be beneficial if a reliable performance measure can be identified. This might be possible using a US sample because of the size, variation and age of the HE sector there.

- *Working out what is cause and effect and what is reverse correlation is complicated. The cross-section results could possibly be explained by assortative matching.*

  This would mean that what is being observed is selection on both sides of the equation. For example higher-quality universities may be matched with higher-quality presidents and vice chancellors. That some level of selection is happening is undeniable, and will be most evident in the cross-sectional equations. But the longitudinal study weakens the argument that the results are caused by a matching effect. Chapter 5 shows that performance of a university in time period T+2 or T+3 is dependent on the appointment of a VC in time

[31] Except Aston University that was excluded from the thesis's data-set. See Chapter 5.

period T-1. This evidence would be strengthened by further longitudinal research.

- *Measurement error may cause attenuation bias in the independent variables. This would weaken the correlations.*

  It is likely that there is measurement error in the independent variables, in particular the key variable of leaders' life-time citations. There will have been counting errors in the collection of bibliometric data and further possible inaccuracies through the normalization process. Also, importantly, the research quality of a leader is unlikely to be measured perfectly by using citations. Such error will have the effect of weakening the statistical relationships in the regressions in that the estimated coefficient on citations will be lower than the true one (Wooldridge 2003). It may be possible to develop more accurate measures in the future, although some error will always be present.

- *The thesis claims in a number of places that managerial skills are important to university heads, but there is no measure in the thesis to assess how important they might be.*

  A measure for scholarly ability is used in this dissertation but it does not factor in a variable for management expertise. Understanding the balance of technical ability versus managerial experience would be an important part of future work in this area.

- *There is relatively little empirical work in this field, and none, as far as the author is aware, that focuses on the technical ability of leaders. This means that there is a small base of literature to draw upon.*

It is hoped that work of this kind will continue to be developed in the future. This could take the form of checking the results in this dissertation by testing for similar patterns in different university data-

sets, or by examining whether the relationships observed here are similar in professional service firms and other knowledge-intensive organizations.

- *The interviews may not be fully trustworthy as participants may have told the author what they thought she wanted to hear.*

  A great deal of care was taken by the author to ensure, where possible, that interviewees were unaware of the focus of the thesis prior to interview. If participants had known of the research question in advance it might have skewed their responses. Despite this, interview data in general can be susceptible to methodological weaknesses both in the process of data collection and analysis. Again care has been taken to try to ensure that interviewees' statements have been fairly reported.

- *Many parts of the world are missing from the data-set which potentially skews the study towards a wealthy-country view.*

  The longitudinal study is focused on UK universities and, although the cross-sectional studies include international institutions, western universities still dominate. It is likely that the research question addressed in this thesis has relevance around the world, therefore future studies in nations beyond Europe and the US would be interesting. This is especially poignant in developing countries that have suffered from the problem of brain drain.

- *The distinctions between public and private universities have not been examined carefully here.*

  The US has the most buoyant mixed economy in higher education, unlike most other countries, where public universities dominate

overwhelmingly. It has been suggested in the introductory chapter that governments may place demands on universities because of issues of finance and politics. This has been observed in the UK and more recently in the US where States are increasingly appointing politicians to head universities. Thus it would be interesting to undertake comparative research on leaders in public and private institutions. This may only be possible in the US.

Conclusion

It is argued in this thesis that where expert knowledge is the key factor that characterizes an organization it is expert knowledge that should also be key in the selection of its leader.

Although this thesis focuses on those who lead universities, the theoretical explanations outlined here are more general. They could also apply to other heads of key strategic units within institutions, for example, department chairs. But another question of importance to the university system as a whole is that of whether top scholars should be leading national research institutes and funding bodies? These are organizations such as the National Institutes for Health and the National Science Foundation in the US, the research councils in the UK (e.g. Medical Research Council, Economic and Social Research Council) and also bodies such as the Higher Education Funding Council for England (HEFCE). The importance of such bodies seems indisputable, and some might argue that their leaders are among the guardians of the higher education sector, and therefore that they should have extensive inherent knowledge about scholarship, and be seen to be credible by those they serve in universities.

The research findings of the thesis can, arguably, be directly applied to the real world. This leads us to ask: who might be interested in the

thesis? There are a number of potential beneficiaries. Universities as institutions do not differ substantially the world over. It is anticipated therefore, that interest may come from universities and also policy analysts, government officials and politicians in countries considering making changes to their higher education systems -- for example, Portugal, Italy and Germany[32].

There is limited public information about what research universities should be looking for in their leaders. Thus, it is anticipated that those who appoint to the top university jobs, such as members of university governing boards and also head-hunters from recruitment firms, should be interested in these findings.

This empirical work is about leaders of institutions dominated by experts and professionals. Hence, the findings are also relevant to firms such as architects, lawyers, accountants and management consultancies. It could also be argued that the recommendations will be of equal significance to arts organizations such as theatres and galleries.

This study will make an intellectual contribution that will be of benefit to the academic community. Specifically, the thesis will add to the body of work in leadership and strategic management. The work also contributes towards education research and furthers our understanding about the appropriate selection of leaders and the important role of governance.

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[32] Contact and interest has already been shown in this work from parties mentioned in this section, specifically policy-makers, universities and the media in a number of countries.

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League tables

- Academic Ranking of World Universities – 2004, Institute of Higher Education, Shanghai Jiao Tong University http://ed.sjtu.edu.cn/ranking.htm]
- Top American Research Universities, *TheCenter* [http://thecenter.ufl.edu]

Statistical packages

- SPSS
- KaleidaGraph, Synergy Software at [www.synergy.com].

Appendices

Appendix 1

Top 500 World Universities (1-100) 2004*

World Rank	Institution	Country	Total Score	Score on Alumni	Score on Award	Score on HiCi	Score on N&S	Score on SCI	Score on Size
1	Harvard Univ	USA	100.0	98.6	100.0	100.0	100.0	100.0	60.6
2	Stanford Univ	USA	77.2	41.2	72.2	96.1	75.2	72.3	68.1
3	Univ Cambridge	UK	76.2	100.0	93.4	56.6	58.5	70.2	73.2
4	Univ California - Berkeley	USA	74.2	70.0	76.0	74.1	75.6	72.7	45.1
5	Massachusetts Inst Tech (MIT)	USA	72.4	74.1	78.9	73.6	69.1	64.6	47.5
6	California Inst Tech	USA	69.0	59.3	66.5	64.8	66.7	53.2	100.0
7	Princeton Univ	USA	63.6	61.0	76.8	65.4	52.1	46.8	67.3
8	Univ Oxford	UK	61.4	64.4	59.1	53.1	55.3	65.2	59.0
9	Columbia Univ	USA	61.2	77.8	58.8	57.3	51.6	68.3	37.0
10	Univ Chicago	USA	60.5	72.2	81.9	55.3	46.6	54.1	32.7
11	Yale Univ	USA	58.6	52.2	44.5	63.6	58.1	63.6	50.4
12	Cornell Univ	USA	55.5	46.6	52.4	60.5	47.2	66.2	33.6
13	Univ California - San Diego	USA	53.8	17.8	34.7	63.6	59.4	67.2	47.9
14	Tokyo Univ	Japan	51.9	36.1	14.4	44.5	55.0	91.9	49.8
15	Univ Pennsylvania	USA	51.8	35.6	35.1	61.2	44.6	72.6	34.0
16	Univ California - Los Angeles	USA	51.6	27.4	32.8	60.5	48.1	79.9	24.8
17	Univ California - San Francisco	USA	50.8	0.0	37.6	59.3	59.5	62.9	48.8
18	Univ Wisconsin - Madison	USA	50.0	43.1	36.3	55.3	48.0	69.2	19.0
19	Univ Michigan - Ann Arbor	USA	49.3	39.8	19.3	64.8	45.7	76.7	20.1
20	Univ Washington - Seattle	USA	49.1	22.7	30.2	57.3	49.6	78.8	16.2
21	Kyoto Univ	Japan	48.3	39.8	34.1	40.0	37.2	77.1	46.4
22	Johns Hopkins Univ	USA	47.5	48.7	28.3	43.7	52.6	71.7	14.2
23	Imperial Coll London	UK	46.4	20.9	38.1	46.2	39.4	65.8	44.5
24	Univ Toronto	Canada	44.6	28.1	19.7	39.1	41.2	78.4	42.8
25	Univ Coll London	UK	44.3	30.8	32.9	41.0	41.0	61.1	42.6
25	Univ Illinois - Urbana Champaign	USA	43.3	41.7	37.4	46.2	36.0	58.2	17.8
27	Swiss Fed Inst Tech - Zurich	Switzerland	43.2	40.3	37.0	39.1	43.2	47.1	41.5

28	Washington Univ - St. Louis	USA	43.1	25.1	26.6	41.9	46.8	56.2	44.9
29	Rockefeller Univ	USA	40.2	22.7	59.8	31.5	43.6	27.1	38.6
30	Northwestern Univ	USA	39.5	21.8	19.3	47.9	35.8	57.2	37.0
31	Duke Univ	USA	38.9	20.9	0.0	48.6	46.8	62.7	36.2
32	New York Univ	USA	38.7	33.9	25.0	43.7	39.3	50.9	19.1
33	Univ Minnesota - Twin Cities	USA	38.3	36.1	0.0	53.9	35.9	69.6	12.8
34	Univ Colorado - Boulder	USA	37.8	16.6	29.8	43.7	38.3	47.5	27.4
35	Univ California - Santa Barbara	USA	37.0	0.0	28.5	45.4	41.4	44.0	36.2
36	Univ British Columbia	Canada	36.3	20.9	19.3	36.0	31.6	59.5	34.9
36	Univ Texas Southwestern Med Center	USA	36.3	16.6	33.9	33.8	40.5	40.0	34.9
38	Vanderbilt Univ	USA	35.1	12.6	30.2	37.1	23.8	50.2	41.7
39	Univ Utrecht	Netherlands	34.9	30.8	21.4	31.5	29.9	58.1	22.1
40	Univ Texas - Austin	USA	34.8	21.8	17.1	50.2	28.8	53.7	12.8
41	Univ Paris 06	France	33.9	35.7	23.9	23.1	24.7	56.7	32.6
42	Univ California - Davis	USA	33.6	0.0	0.0	48.6	37.2	64.7	20.7
43	Pennsylvania State Univ - Univ Park	USA	33.5	14.1	0.0	50.2	37.7	58.7	14.2
44	Rutgers State Univ - New Brunswick	USA	33.4	15.4	20.4	38.1	36.1	48.2	19.5
45	Tech Univ Munich	Germany	33.3	43.1	24.1	27.6	20.4	50.0	32.0
46	Karolinska Inst Stockholm	Sweden	33.0	30.8	27.8	32.7	21.6	49.8	21.5
47	Univ Edinburgh	UK	32.9	22.7	17.1	27.6	36.7	49.1	31.6
48	Univ Paris 11	France	32.5	33.3	34.2	21.4	21.3	46.8	31.2
48	Univ Pittsburgh - Pittsburgh	USA	32.5	18.9	0.0	42.8	26.5	67.0	20.0
48	Univ Southern California	USA	32.5	0.0	27.3	41.9	23.0	53.5	20.5
51	Univ Munich	Germany	32.4	37.2	21.1	12.4	32.0	56.0	31.1
52	Univ Rochester	USA	32.0	33.3	9.1	30.3	27.2	44.9	50.1
53	Australian Natl Univ	Australia	31.9	17.8	12.9	41.0	31.4	43.6	30.7
54	Osaka Univ	Japan	31.5	12.6	0.0	26.2	31.2	72.1	30.2
55	Univ California - Irvine	USA	31.4	0.0	25.0	33.8	29.6	47.2	29.9
56	Univ North Carolina - Chapel Hill	USA	31.2	12.6	0.0	38.1	34.5	60.5	20.3
57	Univ Maryland - Coll Park	USA	31.1	25.9	0.0	40.0	33.2	54.0	17.4
57	Univ Zurich	Switzerland	31.1	12.6	27.3	21.4	30.3	48.9	29.9
59	Univ Copenhagen	Denmark	31.0	30.8	24.7	23.1	22.6	48.1	29.8

60	Univ Bristol	UK	30.6	10.9	18.2	32.7	26.6	49.1	29.4
61	McGill Univ	Canada	30.4	28.8	0.0	31.5	26.3	59.0	29.2
62	Carnegie Mellon Univ	USA	30.3	18.9	30.2	32.7	17.4	38.8	34.0
63	Univ Leiden	Netherlands	29.8	25.1	15.8	30.3	22.0	47.3	30.3
64	Univ Heidelberg	Germany	29.7	10.9	27.7	23.1	22.1	49.7	28.5
65	Case Western Reserve Univ	USA	29.6	37.2	11.8	23.1	22.2	46.1	40.6
66	Moscow State Univ	Russia	29.5	51.5	34.9	0.0	8.1	58.5	28.3
67	Univ Florida	USA	29.3	15.4	0.0	33.8	24.3	66.4	16.3
68	Univ Oslo	Norway	29.2	25.9	34.1	19.5	17.2	42.1	28.0
69	Tohoku Univ	Japan	28.8	18.9	0.0	19.5	26.1	69.3	27.7
69	Univ Sheffield	UK	28.8	23.5	14.4	23.1	28.8	46.2	27.7
71	Purdue Univ - West Lafayette	USA	28.7	18.9	17.1	31.5	22.1	50.5	13.8
72	Univ Helsinki	Finland	28.6	18.9	18.2	15.1	23.7	56.9	27.5
73	Ohio State Univ - Columbus	USA	28.5	17.8	0.0	41.0	20.6	61.3	9.6
74	Uppsala Univ	Sweden	28.4	25.9	32.9	0.0	30.4	52.5	14.5
75	Rice Univ	USA	28.3	21.8	22.3	26.2	23.7	30.2	44.6
76	Univ Arizona	USA	28.1	0.0	0.0	31.5	37.7	56.5	18.1
77	King's Coll London	UK	28.0	16.6	23.5	23.1	19.8	46.2	26.9
78	Univ Manchester	UK	27.9	25.9	19.3	21.4	18.2	48.6	26.8
79	Univ Goettingen	Germany	27.4	38.8	20.4	17.5	18.2	42.8	26.3
80	Michigan State Univ	USA	27.0	12.6	0.0	39.1	28.4	50.5	10.5
80	Univ Nottingham	UK	27.0	15.4	20.4	23.1	20.1	45.1	25.9
82	Brown Univ	USA	26.8	0.0	13.9	30.3	27.9	41.4	30.4
82	Univ Melbourne	Australia	26.8	15.4	14.4	21.4	19.2	53.0	25.8
82	Univ Strasbourg 1	France	26.8	29.5	22.9	21.4	21.3	35.2	25.7
85	Ecole Normale Super Paris	France	26.5	47.9	25.0	17.5	18.2	29.6	25.4
86	Boston Univ	USA	26.3	15.4	0.0	32.7	29.6	51.5	9.6
86	Univ Vienna	Austria	26.3	25.1	15.8	8.7	22.0	54.5	25.3
88	McMaster Univ	Canada	26.0	16.6	19.3	23.1	16.2	45.2	25.0
88	Univ Freiburg	Germany	26.0	25.1	21.4	19.5	18.0	40.9	25.0
90	Hebrew Univ Jerusalem	Israel	25.9	15.4	0.0	26.2	29.5	48.3	24.9
91	Univ Basel	Switzerland	25.8	25.9	17.5	21.4	24.2	35.5	24.8

92	Lund Univ	Sweden	25.6	29.5	0.0	26.2	22.0	54.0	11.2
93	Univ Birmingham	UK	25.5	25.1	11.2	24.7	14.0	47.6	24.5
93	Univ Roma - La Sapienza	Italy	25.5	16.6	15.8	12.4	24.3	57.4	7.9
95	Humboldt Univ Berlin	Germany	25.4	29.5	21.9	8.7	14.8	49.7	24.4
95	Univ Utah	USA	25.4	0.0	0.0	32.7	30.7	48.4	20.1
97	Nagoya Univ	Japan	25.2	0.0	14.4	15.1	23.7	55.3	24.2
97	Stockholm Univ	Sweden	25.2	29.5	30.2	17.5	14.9	35.7	15.3
99	Tufts Univ	USA	25.1	18.9	17.1	19.5	19.1	40.6	29.2
99	Univ Bonn	Germany	25.1	19.9	20.4	17.5	16.7	43.9	24.1

* The methodology for the 2005 Global Ranking produced by SJTU has been slightly modified (see http://ed.sjtu.edu.cn/ranking.htm).

Appendix 2

Citation Thresholds for Scientists Across Different Disciplines (Created in October 2004)

Subject area	Scientist
Agricultural Sciences	154
Biology & Biochemistry	780
Chemistry	648
Clinical Medicine	1095
Computer Science	84
Economics & Business	169
Engineering	182
Environment/Ecology	248
Geosciences	433
Humanities, General*	35
Immunology	763
Materials Science	219
Mathematics	130
Microbiology	534
Molecular Biology & Genetics	1234
Multidisciplinary	123
Neuroscience & Behaviour	908
Pharmacology & Toxicology	312
Physics	1832
Plant & Animal Science	292
Psychiatry/Psychology	393
Social Sciences, General	117
Space Science	1301

Thomson ISI Highly cited, available from
http://in-cites.com/thresholds-citation.html

* Humanities score created by Amanda H. Goodall

Note to Table: The above citation thresholds represent approximately the top 250 authors in each disciplinary field between 1994 - 2004.

DAILYPRINCETONIAN.COM Monday, O
24, 2005

HIGHER EDUCATION

Strong researchers lead top colleges

By Alex Gennis
Princetonian Contributor

A recent study in higher education questions the common belief that presidents of the most well-known universities are chosen based on their fundraising and leadership qualities.

The study, which will be published in the Journal of Documentation, instead says there is a positive correlation between "the lifetime citations of a university's president and the position of that university in the global rankings."

President Shirley Tilghman, who was on the search committee for Princeton University's president before being nominated herself, found the results of the study consistent with what she looked for in Princeton's next leader.

"The rationale for ranking academic excellence very highly is the enormous importance we place on the president having the respect of the faculty. Without that, it is very difficult to lead a research university," Tilghman said in an email. "By having an academic at the helm, the university is stating clearly what it values most highly."

"I am not at all surprised by the findings in this paper. It seems entirely consistent with what I would have predicted in advance," she said.

Amanda H. Goodall, the postdoctoral researcher at Warwick Business School who conducted the study, listed several possible hypotheses to explain the correlation she found. For instance, a highly cited researcher carries symbolic significance in the eyes of faculty, or research ability might simply be a proxy for leadership and fundraising ability.

"The best researchers might have greater inherent knowledge

about the core business of the university," Goodall said.

The study found that the United States is far ahead of the rest of the world in terms of attracting the best researchers for its administrative positions.

Goodall said this might be due to the more bureaucratic style of education systems in Europe, which could put off potential leaders. Tuition at American universities also tends to be higher, she said, allowing for higher compensations for their faculty and administration.

Goodall also found that, of the 15 female presidents at the top 100 universities, six of them lead universities in the top 20. "Top universities may be more progressive in terms of hiring their leaders," she said.

The study used the number of references to the works of a particular researcher in other academic papers as the criteria for judging a president's level of academic involvement.

Goodall said she relied on peer assessment because other researchers in the field are the best arbiters of the quality of a particular person's research.

"It is very difficult to find a method of judging that is not subjective," she said.

Tilghman said she disagreed with the methodology used for ranking academic involvement.

"Counting citations is a very, very poor way to judge excellence and academic accomplishment," she said.